The OIL WEEKLY

10¢ A COPY

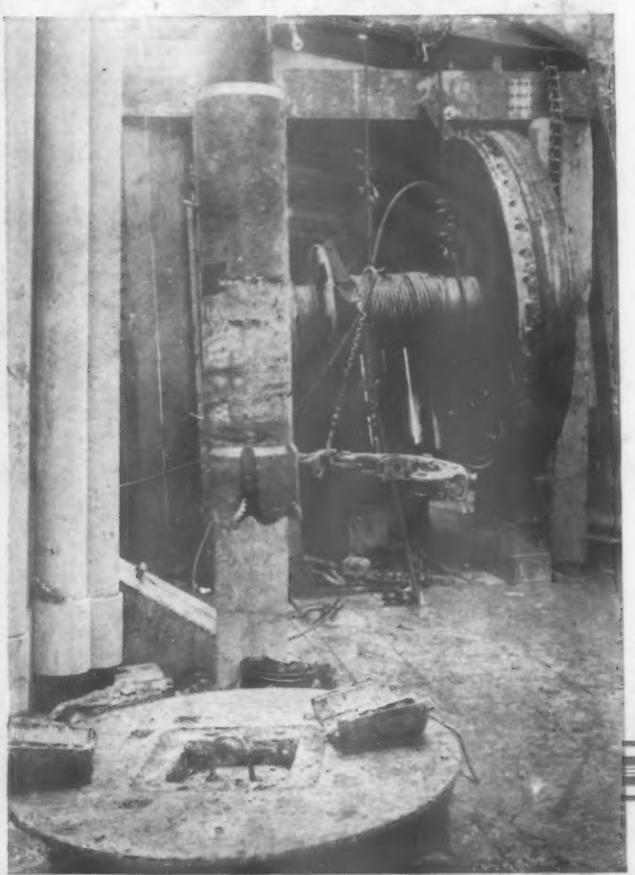
Exclusively Devoted To The Production and Transportation of Oil and Gas

April 26, 1929 **Volume 53. No. 6**

The HUGHES HARD FORMATION CORE BIT

was used in this record-breaking performance in the Rocky Mountain Territory

Only 31 sets of Hughes Self-Cleaning Cones were required in drilling 4163 feet of this hole. Actual drilling time—47 days.
A total of 48 feet of hole was cored between the 4285 and 4343 ft. depth with a Hughes Hard Formation Core Bit.



This performance of the Rotary and Hughes Bits greatly reduced the usual time and cost of making hole usually required in the Rocky Mountain Territory.

The two photographs are of the Texas Production Company's well No. 11, Knowlton Lease, Craig, Colorado—G. H. Vaughn Drilling Company contractors—depth of hole 4343 feet.

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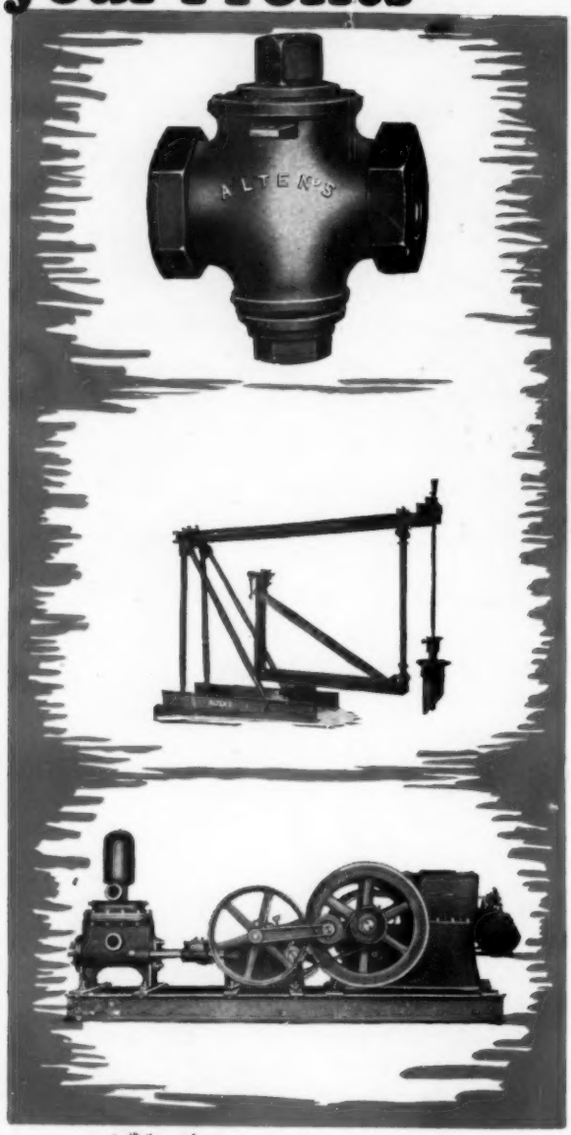
ALTEN'S OIL FIELD EQUIPMENT . . . . adds to your Profits



ALTEN

Look for The Name at Your Supply House

WITH the production of oil in its present limited condition—have you all the latest equipment you need to handle your jobs in the least time, in the most thorough manner—and to make the most money?

The illustrations on this page are only a suggestion of the huge line of Alten equipment for the oil field. There are over 200 separate items now being manufactured in the Alten shops to meet the innumerable requirements of the producer who is trying to make money with a limited production.

Alten's Foundry & Machine Works

LANCASTER, OHIO

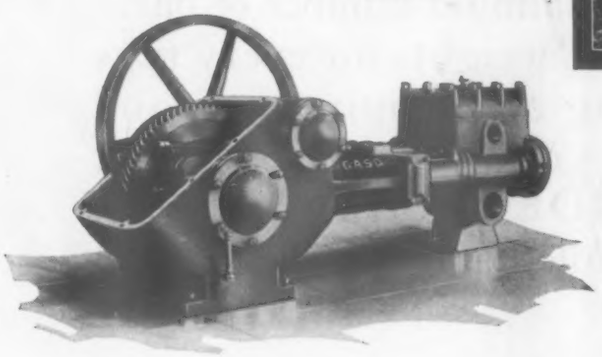
Established in 1889

The OIL WEEKLY. Issued weekly by the Gulf Publishing Co., 3301 Buffalo Drive, Houston, Texas. Subscription price $1.00 per year; 10 cents per copy. Entered as second-class mail matter December 23, 1910, at the post office at Houston, Texas, under act of March 3, 1897.

HUSKY!

Specifications reveal Inherent Durability . . . . in the Fig. 1508 GASO PUMP

A Gaso Fig. 1508 Pump arranged for automatic operation with attention only at long intervals. Station near Drumright, Okla., of Shaffer Oil & Ref. Co. Pipe Line Department.



Capacity of Gaso Fig. 1508 Enclosed Power Pump with interchangeable liner fluid end varies from 63 barrels per hour at 800 pounds pressure, with 2½ inch liner, to 250 barrels per hour at 250 pounds pressure, with 5 inch liner.

Pump can be arranged (1) with pulley for belt drive, (2) direct connected to engine through flexible coupling, (3) for motor drive through silent chain, or reduction gears, (4) for "V" rope drive.

A STUDY of the specifications of the Gaso Fig. 1508 Pump reveals surpassing durability which is inherent with the design and construction.

Some of the features which mark this as a sturdy, smooth running pump, subject only to the very minimum amount of wear, are: Timken Roller Bearing pinion and main bearings; center drive with solid Herringbone gear; heavy, balanced, "H" construction, marine type connecting rods; removable, bronze backed bushing at crank end; dust proof crank case; positive, automatic lubrication.

Ask for all the details on this truly great pump.

GASO PUMP & BURNER MFG. CO.
Tulsa, Oklahoma
Texas Office—210 Petroleum Building, Fort Worth

GASO PUMPS
for every oil industry need

Say you saw it in The OIL WEEKLY

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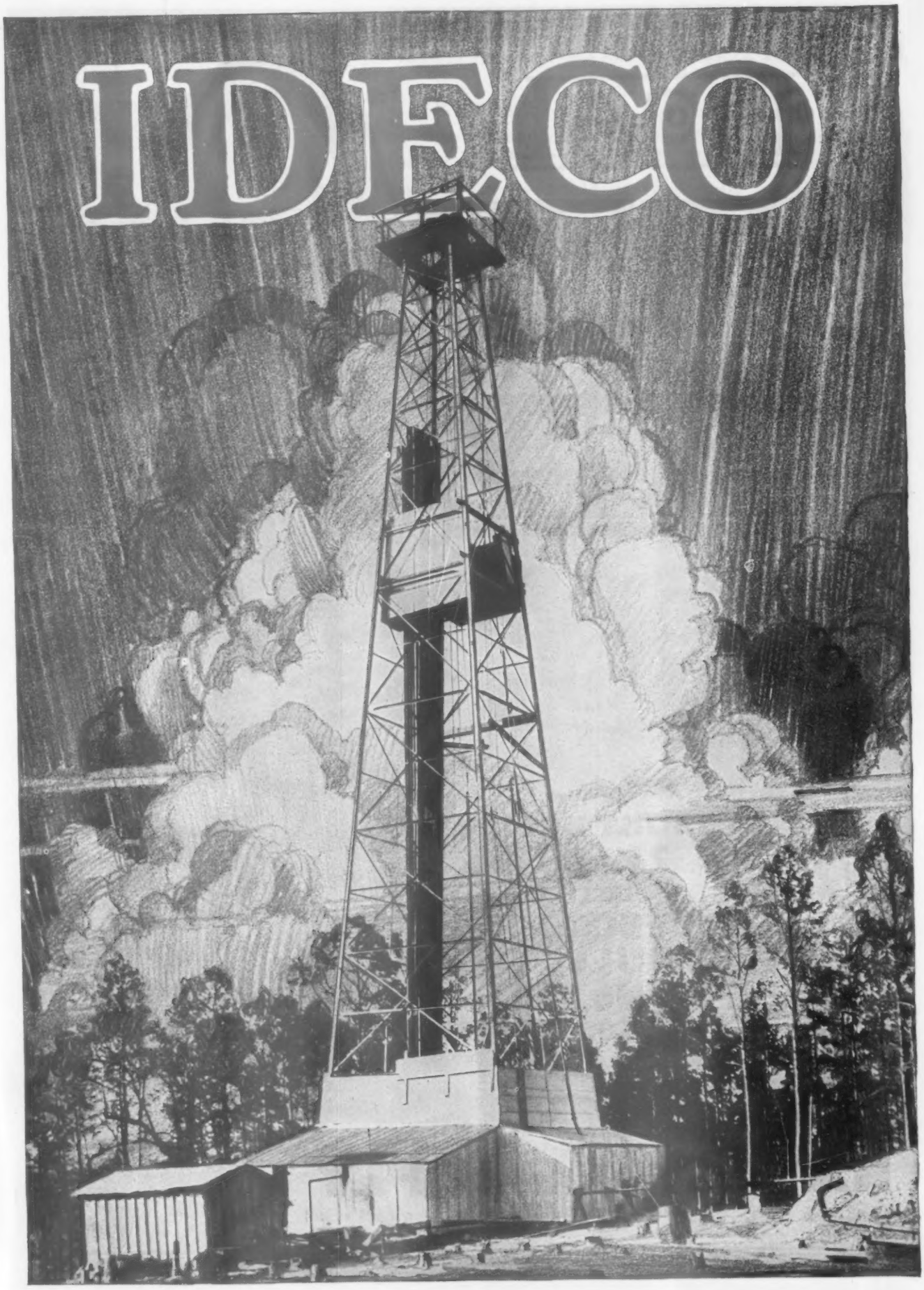
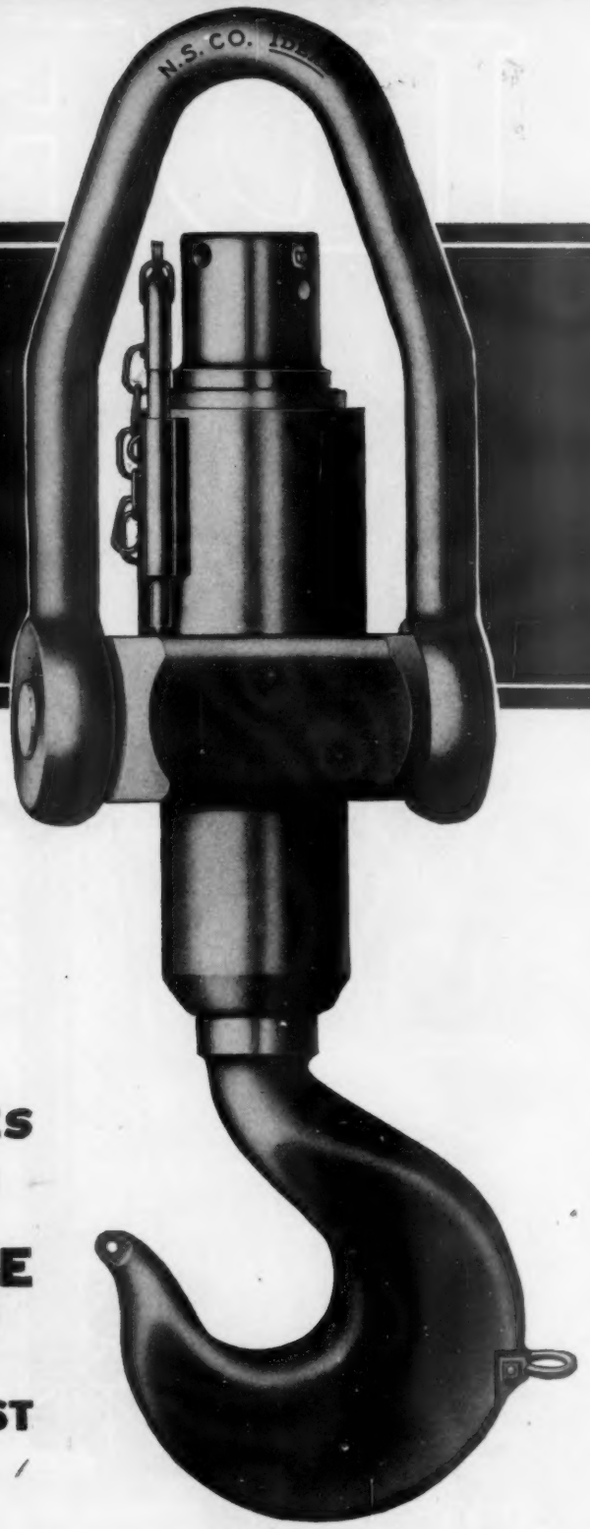


Say you saw it in The OIL WEEKLY

IDEAL

SPRING CASING HOOK



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—and at Goose Creek

ON a large corporation's lease at Goose Creek, ordinary pipe material in pumping wells began failing within 35 days after installation. This *material* was then replaced with BYERS Galvanized Tubing. Two years later, at the latest report, BYERS Tubing was still in service, showing a life over 20 times that of ordinary tubing without a sign of corrosion failure.

Another large company in this field has had BYERS Galvanized Tubing in pumping wells from five to six years without corrosion failures. The production superintendent of this company has a string of galvanized wrought iron tubing in service since 1917—a record of 11 years' continuous service.

A prominent producer at Goose Creek, who was unable to get more than two months' service from ordinary tubing, decided to try galvanized wrought iron. After 18 months and 3 weeks, the wrought iron was reported still in service, without any failures.

The above are typical of the service that is being regularly obtained by the use of BYERS Galvanized Wrought Iron Tubing, not only at Goose Creek, but at oil pools everywhere. Where corrosion will rapidly destroy ordinary tubing, the record of genuine wrought iron seems phenomenal. The ability of genuine wrought iron to resist corrosion is due to the myriads of tiny silicate slag particles characteristic of the metal itself, acting as barriers to the penetration of corrosive influences.

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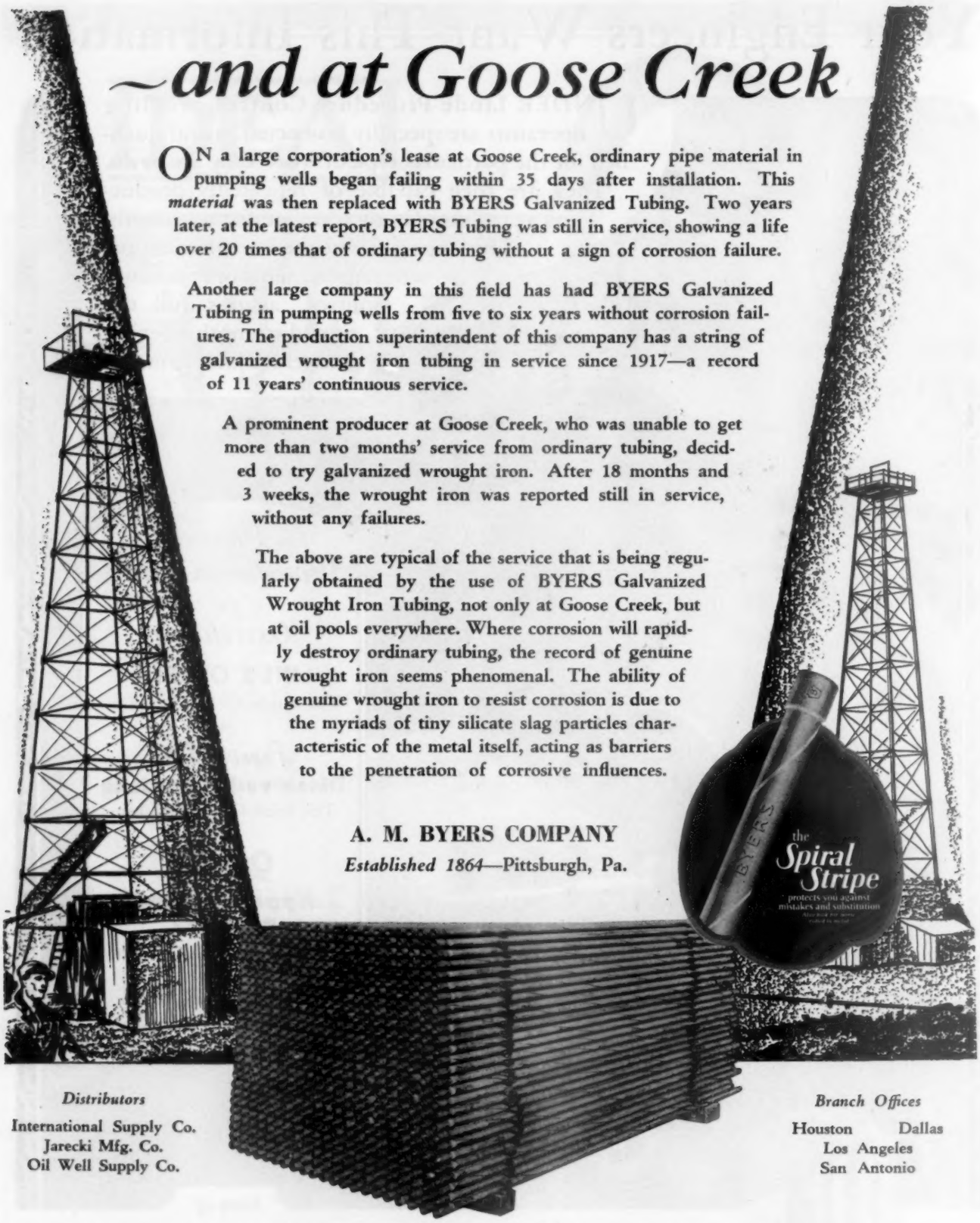
Established 1864—Pittsburgh, Pa.



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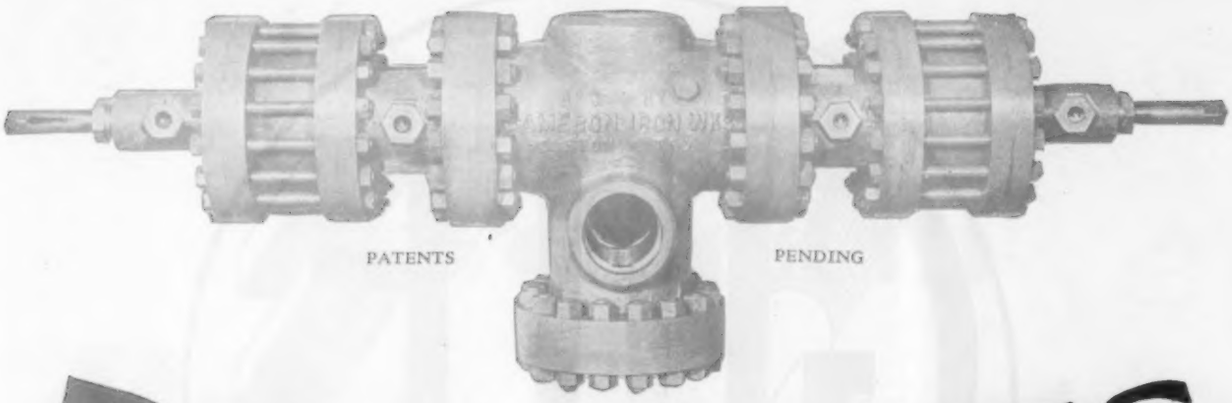
BYERS Galvanized TUBING
GENUINE WROUGHT IRON



BLOWOUTS PREVENTS

C. I. W.
Steam-Operated
Blowout Preventer

WITH the speed of lightning and the grip of a vise the *New C-I-W Steam Operated Blowout Preventer* closes around the drill stem, to lock it in the hole * your equipment, production, and men are *absolutely* protected when your wells are thus equipped *** remote control of the rams allows them to be closed from a safe and convenient point from the well *** the steel against steel circle around drill stem holds it against all pressures *** the extra heavy construction of the body will control the highest pressures ever encountered *** it is safe, sure, and positive and should be on every well you drill!**

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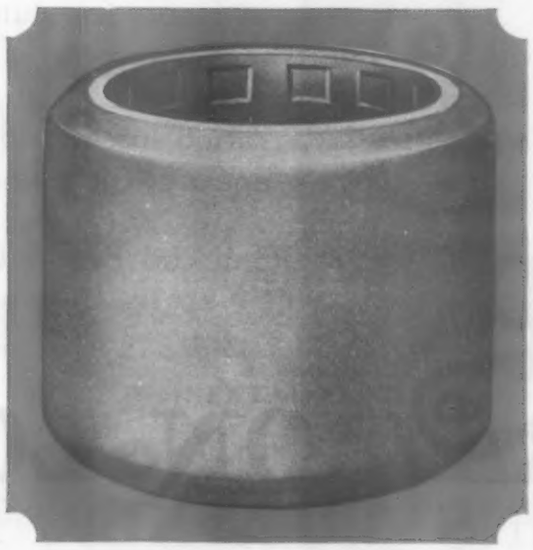
Say you saw it in The OIL WEEKLY

"$3800 invested in *Bettis Protectors* have earned us $255,000 to date"

declares one California Operator

"Best bet yet"



Hopkins Anti-Friction Tool Joints and Collars — now available with genuine Bettis Protectors.

These tool joints are made under licenses granted to leading tool manufacturers by us.

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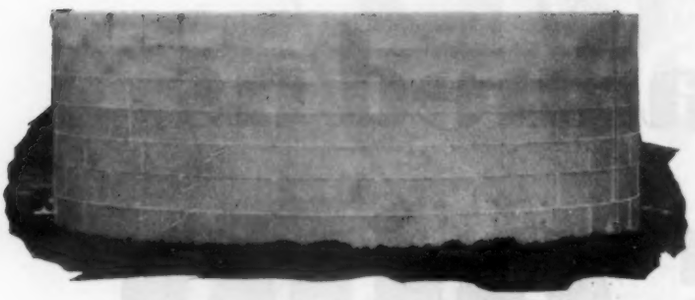
DOES IT PAY
—to prevent evaporation losses?
here's the evidence-

One Company's Wiggins Breather Roof Installations		
1st order equipped		3 tanks
2nd	" "	10 "
3rd	" "	10 "
4th	" "	5 "
5th	" "	5 "
6th	" "	5 "
7th	" "	10 "
TOTAL		48



Wiggins Breather Roof on an 80,000-barrel tank in West Texas.

6 re-orders *from* one producer

NO better evidence of the economic value of Wiggins Roofs could be given than the repeat orders received from well known oil companies. Each repeat order indicates that the roofs do prevent evaporation losses and pay for themselves in a few months.

For example a 55,000-barrel tank filled with average Mid-Continent crude will lose 470 to 570 barrels per year if equipped with a gastight roof, a loss which can be practically eliminated by use of a Wiggins Breather Roof. This saving pays the difference in cost of the Breather Roof over a cone roof in ten months.

Wiggins Floating Roofs are especially adapted for working tanks and Wiggins Breather Roofs for standing storage. Ask our nearest office for information on stopping evaporation losses and lists of present users of Wiggins Roofs.

STOP EVAPORATION LOSSES with WIGGINS BREATHER ROOFS

CHICAGO BRIDGE & IRON WORKS

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Chicago	2142 Old Colony Bldg	Philadelphia	1613 Jefferson Bldg.
New York	3144 Hudson Terminal	San Francisco	1050 Rialto Bldg.
Cleveland	2241 Union Trust Bldg.	Havana, Cuba	Apartado 2507

OW 4-26 Gray

TITUSVILLE TICO ENCLOSED GAS ENGINES

3 FEATURES

of the new Tico that warrant your *immediate* investigation

For example—all castings of the Tico Gas Engine are of semi-steel high carbon open hearth steel forgings, phosphor bronze and special alloys are used for all parts subjected to wear or corrosion. These are a few of the many factors that make the new Tico Gas Engine well worth your further investigation.

The TITUSVILLE IRON WORKS Co.
TITUSVILLE - PENNA.

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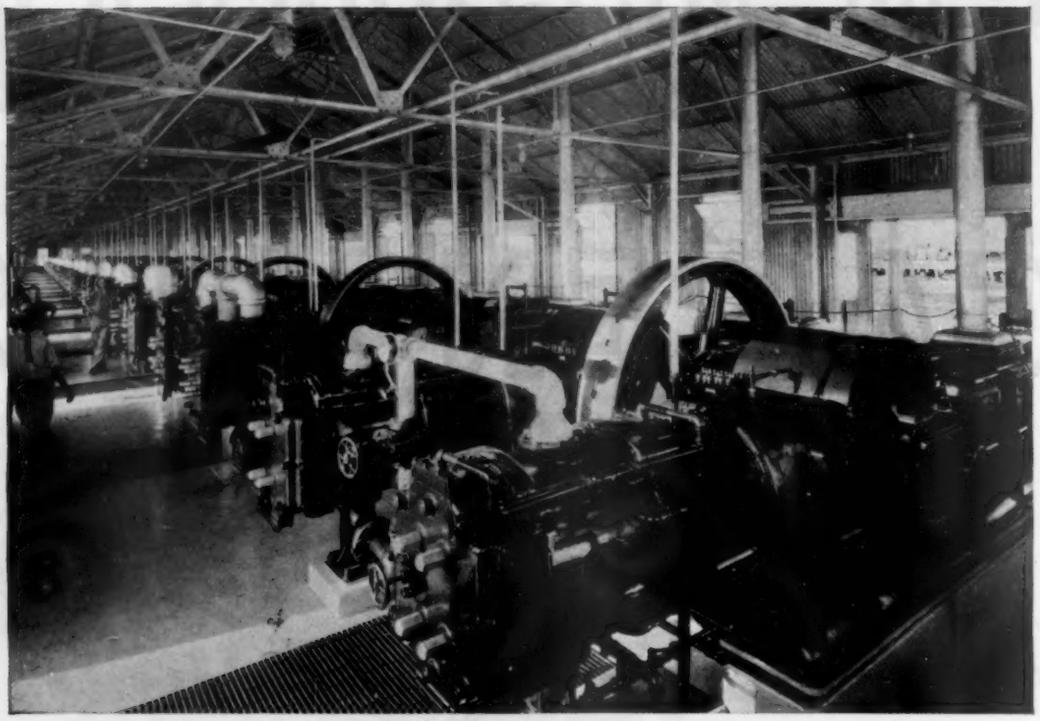
RUGGED - ENDURING



Stewart plant of the Carter Oil Co. with its long line of eighteen 165 H. P. Bessemer Twin Type Tens equipped with 17x17x20 Bessemer Type V. H. Compressor Cylinders.

Because they keep on Running!

TWENTY YEARS or more of continuous service is the rule—not the exception with Bessemers. They are built so that they don't know what wear-out means; they take 24-hour-a-day service for granted and they are unconscious of the passage of the years. And during their decades of service they unfailingly deliver their 99%+ running time.

That is why one large user after another standardizes on Bessemers—for gasoline plants, air-gas lift plants, booster stations, vacuum plants, pumping, pipe line stations and drilling. Experience has proved conclusively that Bessemers unquestionably cost less by the year.

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BESSEMER

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CLARK DOUBLE ACTING ENGINES Save Money

Coming

By securing a driving impulse in both directions of cross head travel for every revolution, the CLARK Double Acting Engine obviously decreases the investment cost per horsepower, for — Engine — Foundations — Freight and Hauling — Buildings — and Piping for both power and compression ends.

and

Going

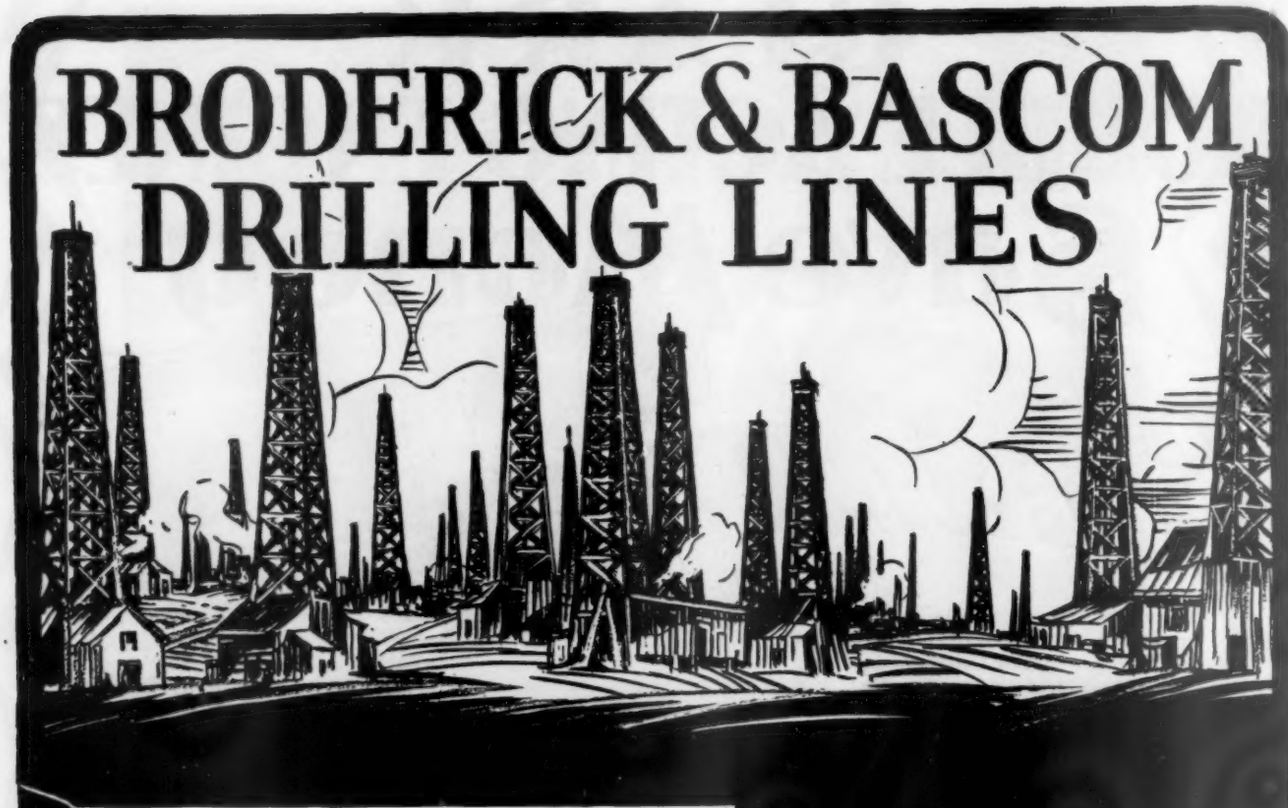
By combining 2-cycle simplicity with the supremely efficient CLARK "Super 2" principle of design, the Double Acting Engine effects maximum maintenance economy and saves one-third the fuel required by the ordinary 2-cycle machine.

Check up on CLARK Double Acting Engine economy. Clark Bros. Company, Olean, N. Y. Branches and Warehouses: 150 Broadway, New York; 125 West First St., Tulsa; McCamey and Sweetwater, Texas, and Artesia, N. M. Smith, Booth, Usher Company, 228 S. Central Ave., Los Angeles, and 50 Fremont Street, San Francisco.

Compressors and Gas Engines

CLARK

BRODERICK & BASCOM DRILLING LINES



THE deeper the hole, the more you will appreciate the stamina of famous B. & B. Drilling Lines. They literally "go further." So does the money you spend for them.

Strong, extraordinarily elastic and pliable. Quicker drilling and less risk with B. & B. Patentsteel, Extra Strong or Cast Steel Lines. Also powerful Yellow Strand Rotary Lines for rotary fields.

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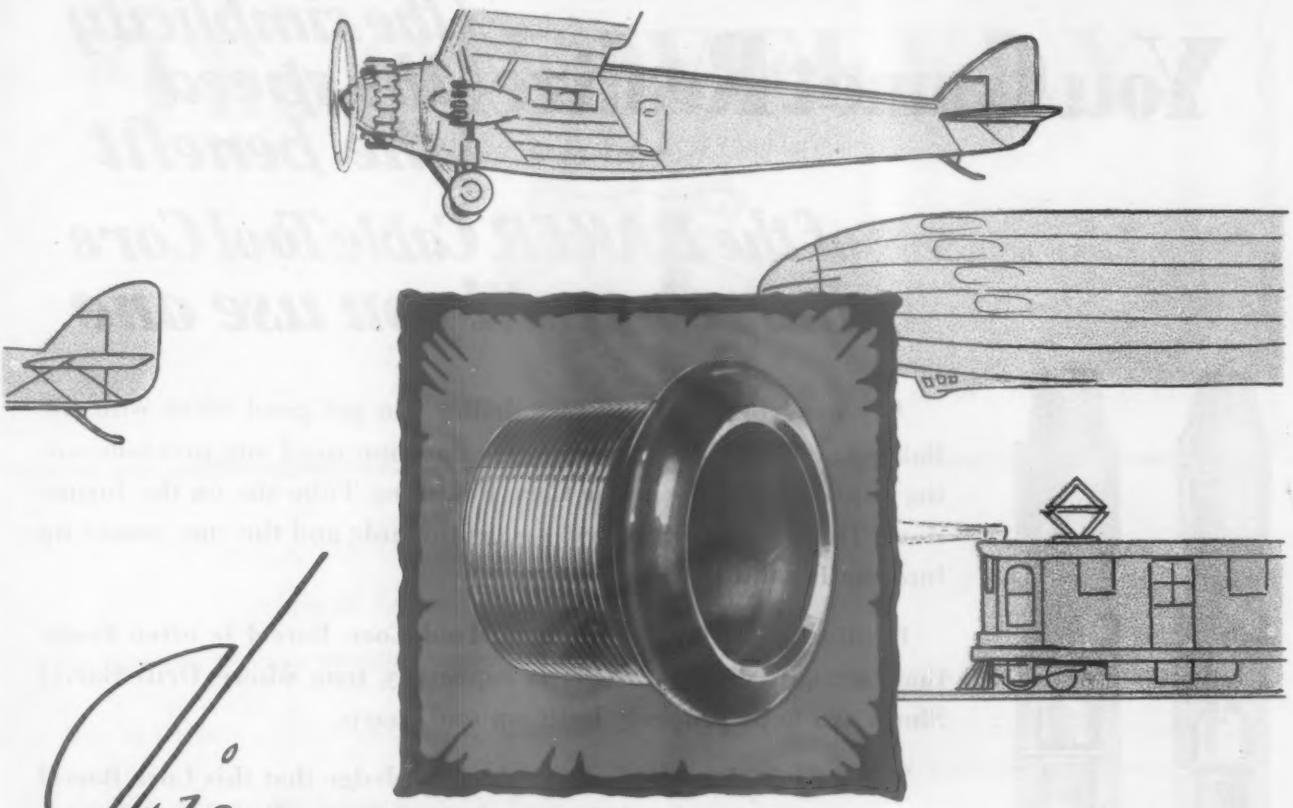


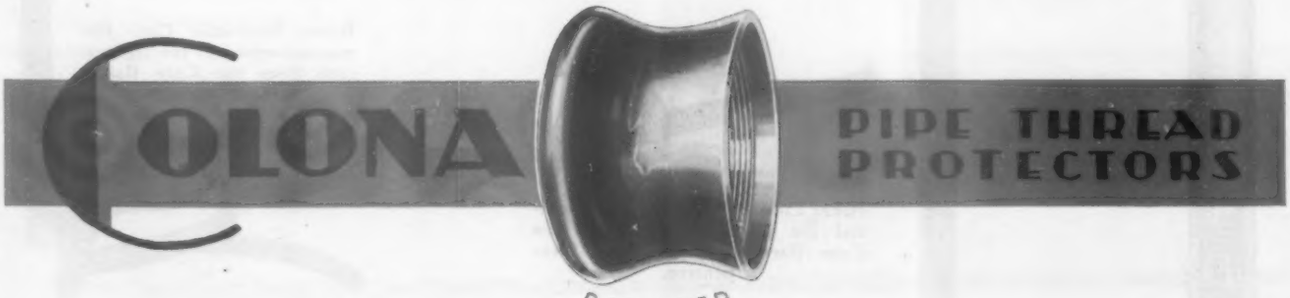
This IDEA *belongs to a* progressive efficient age....

—Today, in the oil industry, time is precious—labor is costly—delays expensive—

The idea of protecting the vulnerable threads of pipe and couplings is modern—it means that the buyer is assured that he gets what he pays for—clean sharp threads—free of dirt—that joint up quickly, tightly, securely—without delays for cleaning or rethreading.

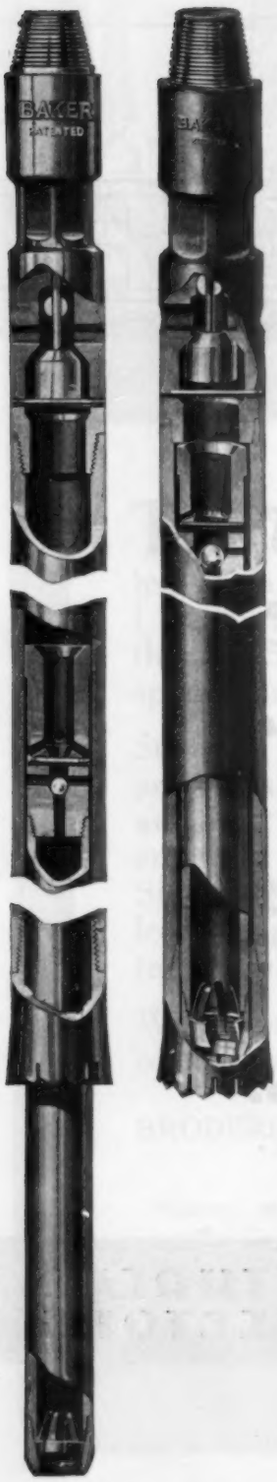
Insist on pipe and casing—Colona Protected—

Colona Manufacturing Co.
Pittsburgh, Pa.



Say you saw it in The OIL WEEKLY

You Cannot Realize { *the simplicity* / *the speed* / *the benefit* } *of the BAKER Cable Tool Core Barrel—until you use one*



Any experienced cable tool driller can get good cores with the Baker Cable Tool Core Barrel. He does not need any previous coring experience. The Inner Core Retaining Tube sits on the formation. The Outer Drill Barrel makes the hole and the core passes up into the Retaining Tube.

Drilling with the Baker Cable Tool Core Barrel is often faster than straight drilling. This is especially true where Drill Barrel Shoes are kept properly built up and sharp.

The benefit that comes from the knowledge that this Core Barrel can give is often the difference between a profitable well and a duster or a water well. Any way you figure, it costs more money to guess than it does to core.

Write for literature giving complete data on the operation, construction and results of this remarkable tool.

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Baker Core Barrel Tongs are essential for properly setting up the Core Barrel—comparatively inexpensive.

Baker Hydraulic Core Extractor—removes the tightest core from the Core Barrel without damage.

APR 30 1929

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The OIL WEEKLY

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VOLUME 53, NO. 6

APRIL 26, 1929

Edited Weekly at Houston, Texas

SPENCER W. ROBINSON, EDITOR

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DOUBLE SAFETY IN THIS DOUBLE ANCHOR PACKING HEAD

A HIGH pressure, self-contained Packing Head which screws on well casing and does not require anchor or landing clamps. Upper and lower slips provide a double anchor and enable the packing head to safely carry the longest strings of inner casing or tubing. Can be repacked at any time without disturbing either string. Has full length threads for all casing and tubing connections.

This Packing Head is a dependable anchor and blow-out preventer, controlling high surface pressures. Can be used as a spider when carrying inner casing or tubing, as an air head when lifting oil from producing wells by compressed air or gas method, or with an oil saver by means of added equipment. Made entirely of forged steel, including slips and rings. Handles outer casing 6¼" to 12½".

IT'S FROM "OILWELL"

925

OIL WELL SUPPLY CO.

NEW YORK—LOS ANGELES—PITTSBURGH, U.S.A.—SAN FRANCISCO—TAMPICO—LONDON

WORLD'S OLDEST AND LARGEST MANUFACTURERS OF OIL FIELD EQUIPMENT

Volume 53, No. 6 *April 26, 1929*

The OIL WEEKLY

A GULF PUBLISHING COMPANY PUBLICATION

Four-Way Agreement *Effectively* Curtailing Venezuela

By ROY E. LEIGH
Special Foreign Representative

MARACAIBO, Venezuela, April 2 (By Mail)—The recent discovery of an unsuspected thickness of oil sand in the Lago Petroleum Company's No. 520, one of the southernmost wells of the Lagunillas field, emphasizes the tremendous importance of the Bolivar Lake Shore reserves and brings up visions of a market-smashing offset campaign which doubtless would have resulted if the major producers of the Maracaibo Basin had not been able to agree on a restriction program early in the year. This well has penetrated pay sand to a total thickness of 180 feet—about twice the thickness usually found in the more central part of the field—and is still in the money at a depth of more than 4300 feet.

However, this discovery, important though it is, will not have the usual result, as the further extension of the Lagunillas area is for the time being prohibited under the terms of a definite restriction agreement to which the Lago Petroleum Company, Venezuela Gulf Company, Shell, and Creole Petroleum Corporation companies are parties. This four-party agreement is of far-reaching importance, not only in Venezuela, but also in America and Europe, as it will operate to retain underground oil which might otherwise have been produced under uneconomic competitive conditions and dumped into a demoralized market. It is remarkable also for the reason that it marks a definite mile-stone in the present trend of the industry toward a sane co-operative production policy. Its terms were developed in a conference attended by the higher officials of the four big companies concerned, who gathered in New York for the purpose.

This gentlemen's agreement provides not only for the restriction of drilling but also places a definite limit on storage and shipping facilities. Its term is for the remainder of the calendar year, with a proviso that any party ordering additional tankage or tankers after January 1, 1930, must notify all other parties within 10 days after placing the order. In effect, it simply provides for the maintenance of the status which existed at about the first of the year; but it obviates the danger of a disastrous campaign of ship-building, tank construction, and competitive drilling which seemed to threaten at that time.

The drilling clause prohibits the further extension of the Lagunillas field, both in the northern and southern directions. As the competitive boundaries are now fairly well fenced in by completed offset wells, and as the general economic situation precludes the extension of development into undrilled non-competitive territory lying east and west of present production, this gives assurance of a peaceful year at Lagunillas. The four-party agreement stipulates that no drilling shall be done north of a line drawn 150 meters north of the Miraflores parcel and south of a similar line drawn at an equal distance south of the southern boundary of the Laguna parcel. The northern boundary of the restricted area lying between the Lagunillas and La Rosa fields is fixed as the boundary line separating the Huron and Erie parcels, near Punta Benitez. This postpones the joining up of the Lagunillas and La Rosa-Ambrosio fields into one vast productive area, as is confidently expected to occur in the course of time.

The shipping clause provides that the Lago Petroleum Com-

ROY E. LEIGH, special foreign representative of THE OIL WEEKLY, *has arrived in Barranquilla, from which point he will continue his study of South American oil conditions. He expects to give the Colombian fields the same kind of treatment as those of Venezuela, which have been covered in* THE OIL WEEKLY *during the past month.*

Mr. Leigh has made arrangements with the Sociedad Colombo-Alemana de Transportes Aeros for the use of their hydroplane service between Barranquilla along the Magdalena River to Bogota and return and from Barranquilla along the Pacific Coast to Guayaquil.

ROY E. LEIGH

A Maracaibo Gusher

pany may put into commission three 21,000-barrel lake tankers now under construction, delivery of which is expected about June 1; but stipulates that the fleets of the other three companies shall not be increased beyond the number of ships now in service or due to arrive shortly. The receipt of these new shallow-draft vessels will increase Lago Petroleum Company shipping capacity from 3,044,000 barrels to 3,737,000 barrels per month.

Tank Construction Stopped

The Lago Petroleum Company is also permitted to carry on with its tank-building program at Punta Gorda tank farm until its contract with the Chicago Bridge & Iron Works shall have been completed. This contract covers 51 80,000-barrel steel tanks, of which 43 have been completed and only eight remain to be erected. The Creole Petroleum Corporation, which is not very well provided with storage facilities, also secured a small concession under this heading, enabling it to build not more than 177,000 barrels of tankage. The Shell and Gulf companies were both restricted to existing facilities, which are approximately as shown in the following tabulation:

Company	Tankers Number	Monthly Capacity	Storage Permitted
Lago	22	3,737,000	[a]8,000,000
Shell	36	5,127,000	[b]1,800,000
Gulf	15	2,772,000	[c]2,900,000
Creole	3	660,000	177,000
Totals	76	12,296,000	12,877,000

[a]Does not include 2,660,000 barrels on Island of Aruba, D. W. I.

[b]Does not include extensive storage facilities owned by Curacaosche Petroleum Industrie Maatschappij and Arend Petroleum Maatschappij on the islands of Curacao and Aruba, nor tankage owned by Caribbean Petroleum Company and Colon Oil Corporation in non-competitive areas, such as Mene Grande and Rio Tarra.

[c]Does not include 37 80,000-barrel tanks at Paraguana sea-loading terminal.

Its boundary lines being fairly well protected by completed wells and by the terms of the restriction agreement, the Lago Petroleum Company is dismissing its drilling crews, one by one, as wells are completed. Six rigs have been stacked since March 1, or thereabouts; and it is said that the company's drilling operations may further be cut down to a maximum of eight rigs, as compared to a total of 17 which were in use prior to the consummation of the restriction agreement.

While the Caribbean Petroleum Company is not directly a party to the agreements, its operations at Mene Grande have indirectly been affected, since the shipping clause restricts its tanker outlet. The Shell's activities in this field, which it controls in its entirety, have been restricted to two rigs; and its production has been shut in and pinched in to a current average of around 27,225 barrels per day. Only 30 flank wells out of 162 producers are in operation, and they are drastically choked in. The boundaries of this fertile field are still undefined, and the company has around 3000 undrilled proven locations.

Restriction Assures a Quiet Year

This agreement effectively disposes of the Venezuelan situation, in so far as further production increases are concerned, for the remainder of the current year, as none of the promising wildcat fields—Urumaco, Amana, Rio Palmar, Dabajuro, Netick (Orinoco Oil Company), etc.—can be brought into production on a commercial scale within that period. The Colon Oil Corporation (Shell) must construct 90 or 95 miles of eight-inch pipe line, three interior pumping stations, one lake loading station and about 60 miles of narrow-gauge railroad before the Rio Tarra field in the District of Colon, south of Lake Maracaibo, can be opened up. This work probably will not be completed until some time in the early part of 1930.

The Rio Tarra field is variously estimated to have a potential production of from 15,000 to 20,000 barrels per day, but only fuel oil is being produced at present.

The commercial production of the Maracaibo Basin averaged around 360,600 barrels per day as of April 1. This total does not include small quantities of oil produced for fuel in the non-shipping fields, such as Rio Tarra, mentioned above, and Rio Palmar (Totumo), Dabajuro, Urumaco, Amana, etc.

Field		Approx. Daily Average
Lagunillas		212,365
La Rosa-Ambrosio-Punta Benitez		116,335
Mene Grande		
Heavy	22,000	
Light	5,225	27,225
El Mene		
Crude oil	4,200	
Casing-head gasoline, blended	400	4,600
Hombre Pintado		75
Approximate total		360,600

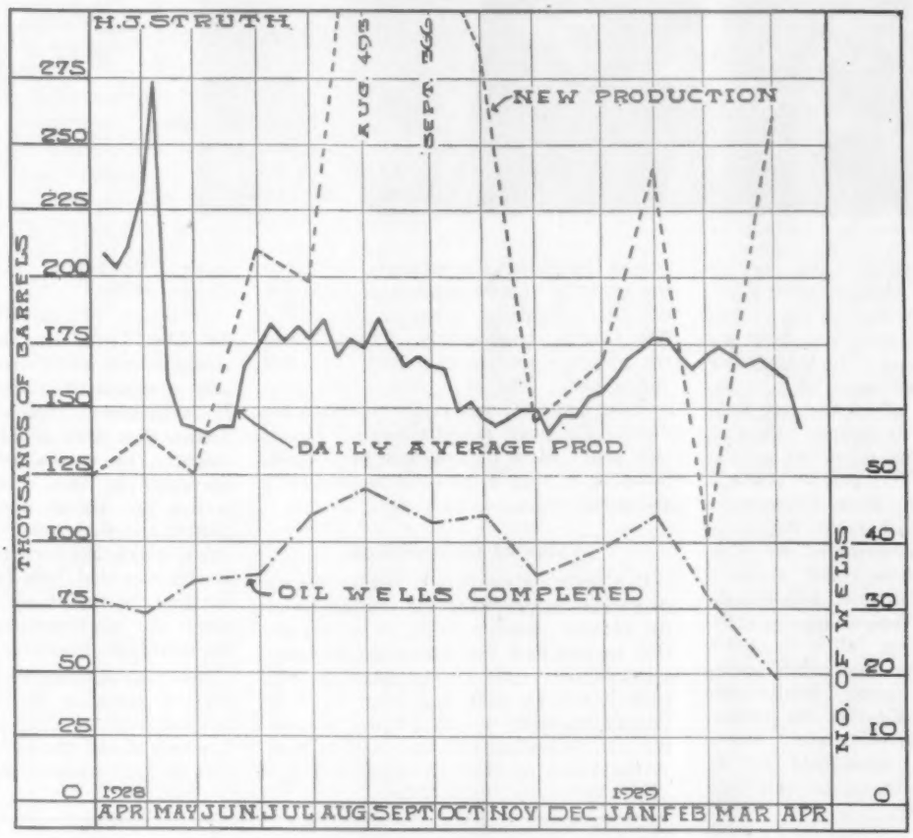
Mr. Leigh's next article will deal with prospective oil fields in Venezuela and wildcat operations considered potential factors in that country's future production. Amazing diligence is manifested by those operators in Venezuela who have projected exploration campaigns, notwithstanding the vigorous curtailment policies in effect in proven areas.

West Texas

An Incentive to Success of California Curtailment

Nation's most prolific oil area has set pace for control that solves overproduction problem

By H. J. STRUTH
Staff Economist



COURSE OF WINKLER COUNTY PRODUCTION

Note how proration affected daily output and the way curve has been controlled since May, 1928. Curves of wells completed and new production show that drilling activity has no material effect upon the production curve.

WHEN the news was flashed across the continent that California operators had decided to curtail their production at least 100,000 barrels a day, beginning with April 22, there were some who doubted that this could be accomplished. No better analogy of the ability to accomplish such results could be cited than the performance exhibited in Winkler County, Texas—a criterion that offers no excuse for failure to carry out the program now in force on the Pacific Coast.

Just as California's production has consistently mounted to spectacular peaks, so Winkler County's production had surged forward to precarious levels, only to be curtailed to the extent of 176,000 barrels at a single stroke. On May 4, 1928, production of the Hendrick pool in Winkler County, reached a 24-hour peak of 326,000 barrels. On May 5, a drastic proration order was placed into effect, reducing the allowable output of this field to 150,000 barrels a day. Within one week, from May 5 to May 12, the daily average production of this field showed a net decline of 113,000 barrels a day, and, only two weeks ago, the average had been further reduced by 19,000 barrels.

Control Proven Possible

This is a concrete illustration of the ability of the industry to maintain absolute control over the production of petroleum, and it provides a logical reason for believing that California can accomplish what it has set about to do.

In the April 5 issue of THE OIL WEEKLY, the writer presented results of his first-hand study of conditions in Hendrick pool, stating that the remarkable results obtained by proration in this prolific field exemplified the feasibility of nation-wide control of petroleum production. Since California has earnestly begun a drive to reduce the output of that state 100,000 barrels a day, it is of particular interest to delve further into the remarkable work being done in this direction in the West Texas area.

A careful study of the various fields comprising the West Texas oil area, obtained during a recent tour of that territory, reveals an astounding aggregate daily potential production of seven million barrels. When we consider the fact that

Yates Field, Pecos County, Texas. This panoramic view was taken south of The California Company's Yates Lease, Section 34. Flow tanks, in batteries of five, which may be located in the picture, show the approximate location of flowing wells. Because of the shallow depth, 1100 to 1500 feet, most operators use drilling machines, thus the absence of derricks

the wells now producing in this vast territory are capable of yielding about 2,500,000 barrels of oil a day, at the present time, while the actual combined daily production of this area is only 354,000 barrels, we begin to get some idea of the enormous quantities of oil that are being successfully conserved against future requirements. Since no other oil area in the United States offers greater potential oil resources than the West Texas territory, it is apparent that the degree of success which has accompanied the adoption of proration there could, undoubtedly be realized in California to a like degree. Since the success of proration depends, primarily, upon full co-operation of operators—the kind that exists among operators in Winkler County—there should no longer by any doubt over the successful culmination of the curtailment plan in California—the last stronghold in the ranks of opposition to nation-wide control of the oil supply.

Yield Approaches Allowance

Some idea of what may be expected if all oil fields succeed with curtailment plans can be gained from the accompanying chart which shows what has been accomplished with proration in Winkler County. This shows the effect of proration upon the daily average production curve, which declined within a period of one week from 273,000 barrels to 160,000 barrels a day. Several times the limits of this field have been raised or lowered from 150,000 to 175,000 and back to 150,000 barrels a day. With each change the production curve has conformed to the limits prescribed by the proration committee. Now, Winkler County's limit is placed at 125,000 barrels, and there is little doubt that this limit will be successfully maintained. This chart also shows that drilling activity has not entirely subsided in this pool; in fact the number of oil wells completed each month and the quantity of new production obtained has had no material effect upon the daily output of the field. For example, in March the quantity of new production exceeded the allowable daily output by about 100,000 barrels, conclusively demonstrating the absolute control exercised over this entire field. The ease with which production could be materially increased indicates the huge potentialities of Hendrick pool. Most of this new production, however, is shut in as soon as producers are completed.

Value of Co-operation

If California exhibits a similar degree of success in prorating the production of its various prolific fields, it is certain that we can look for immediate improvement in the crude supply situation. At least it can be said that what Winkler County has done to retard crude production can be emulated by operators in most of the fields in California and, for that matter, throughout every field in the United States.

It is only necessary to travel through the West Texas area and talk with individual operators to discover the remarkable co-operative spirit that exists there. If selfishness predominated in West Texas, that area could soon engulf the industry in a sea of oil. However, operators in this area have come to realize the urgent need for production control and their remarkable co-operative spirit, which has been responsible for the results recorded, bids fair to virtually set the pace for nation-wide control that will solve the over-production problem for the petroleum industry.

No more convincing proof of the success of proration in West Texas could be cited than the data presented in Table 1, which shows the possible daily production of the various fields comprising this

WE THANK YOU, MR. ALSOBROOK

Mr. H. J. Struth, Staff Economist,
The Oil Weekly,
Houston, Texas.

My Dear Mr. Struth:

It is interesting to read your article "Feasibility of Nation-wide Control Exemplified by Winkler Plan" as appeared in Oil Weekly issue of April 5th.

You cover the situation in your usual thorough and instructive manner. I think you said exactly the right things and this article comes very timely in the face of the turn-down at Washington in the opinion rendered by the Attorney-General. Your article helps materially to keep-up-the-faith.

I congratulate you heartily upon the good turn done the "cause" in your article and sincerely hope other trade journals will take up the thought and sell the idea more firmly to all classes of operators.

With best wishes,
R. ALSOBROOK,
Umpire Winkler County
Advisory Committee.

productive area compared with actual output at present.

TABLE 1

Possible and Actual Production of West Texas Fields.

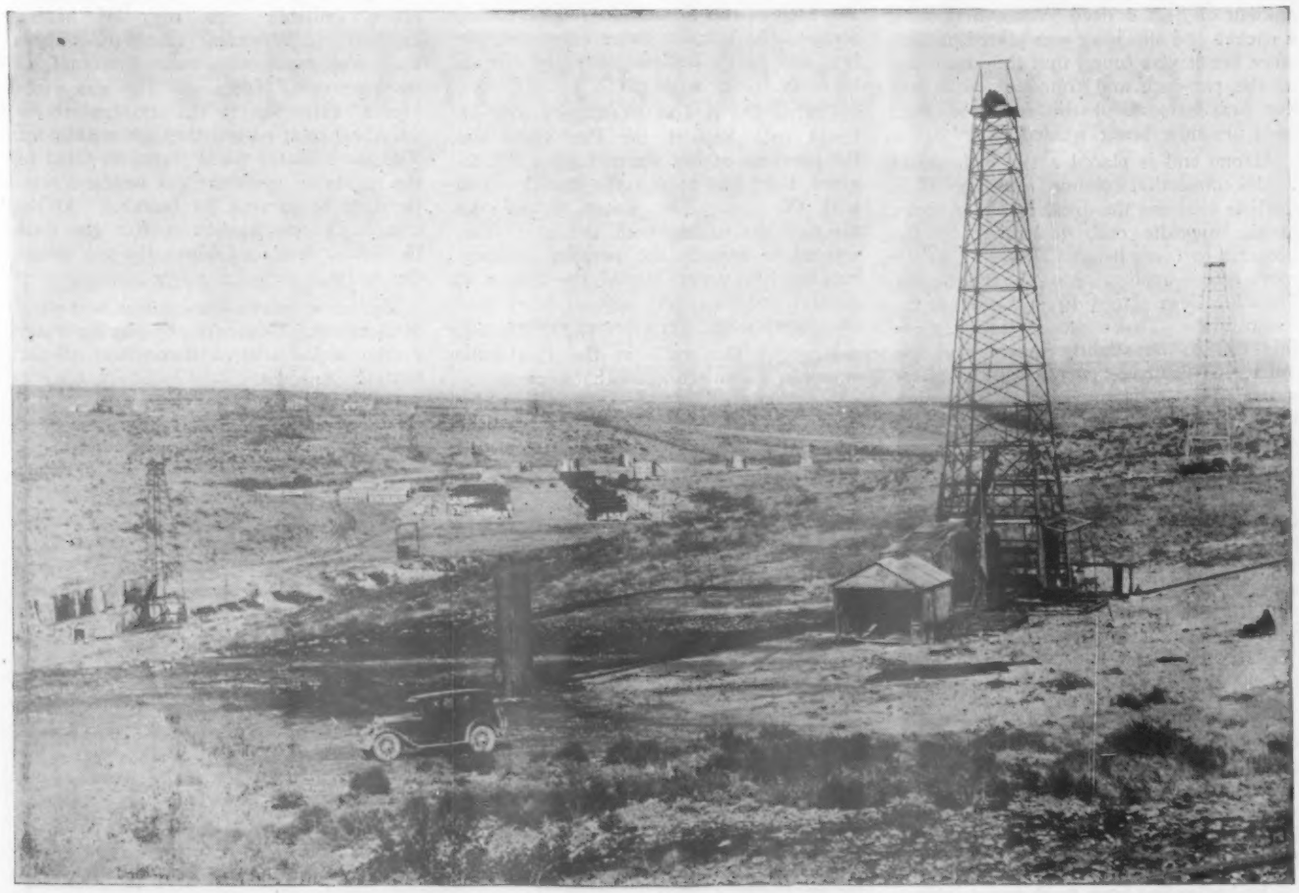
County	Possible Production Jan. 1, 1929	Actual Production Apr. 13, 1929
Crockett	2,939	2,100
Howard-Glasscock	76,500	42,700
Mitchell-Scurry	2,725	2,800
Pecos	1,400,000	88,200
Reagan	16,500	18,500
Winkler	900,000	143,200
Others	283,000	1,800
Totals	2,450,247	354,400

The figures shown in Table 1 are further amplified by estimates of potential recovery from this area which credit West Texas with a combined ultimate daily production of seven million barrels. Thus, where Pecos County could now produce 1,400,000 barrels of crude daily, its potential is rated above four million barrels a day, while Winkler County, credited with a possible output of 900,000 barrels daily, is rated at a potential of 2,798,000 barrels a day. These figures give some idea of the significance of this prolific oil producing area and forcibly emphasize the remarkable strides that have been made there to keep production within reasonable economic bounds.

Another factor that has an important bearing upon the supply situation in West Texas is the expansion of refining facilities within that immediate area. There are now in operation or building, 26 refineries having a crude capacity of 126,000 barrels daily. It has been estimated by the writer that these refineries will consume about 28 million barrels of crude during the present year. Since West Texas will probably produce about 120 million barrels of crude this year, refineries adjacent to producing fields will absorb nearly one-fourth of all the crude produced. In view of the brisk demand for West Texas crude in various refining centers outside of this area, it is apparent that the local demand will have an important bearing upon the economic status of these fields. At any rate, it is apparent that these operators face a brighter outlook than ever before and their situation can be said to furnish an incentive to the entire industry to adopt a similar plan of proration.

Nearer Economic Stability

Oklahoma and West Texas have taken a conspicuous lead in curtailment effort, and the news from California presages that the movement to limit production has reached practical unanimity. With these three huge factors in accord on the curtailment plan, it is apparent that an economic ideal is on the threshold of realization. Everyone will agree that California has been a big factor in the over-production of oil and the movement of its huge surplus has unfavorably affected the entire industry. However, it is now believed that California will successfully carry through the recently adopted curtailment plan and the results obtained, combined with the achievements of Oklahoma and West Texas, will prove to be a most constructive step in stabilizing the industry. The move to retard production 100,000 barrels a day in California is only the beginning of what eventually will be realized. Undoubtedly, the success of this plan will lead to further effort there to more nearly balance the daily supply with current demand. What has been accomplished in West Texas, alone, surely can be emulated in California, and that means a possible reduction of 150,000 barrels a day or more, when the success of the initial movement has been demonstrated. It has taken a long time for the industry to fully realize the need for curtailment, but there is now every indication that the seriousness of over-production is fully realized by all concerned and the plan outlined by the American Petroleum Institute will receive the whole-hearted support of the industry. The Winkler County pool set a precedent for the industry by curtailing its daily production considerably more than 100,000 barrels at a single stroke. The eyes of the industry are now on California, confident that success will attend curtailment effort there.



The Yates Field, Pecos County, Texas, showing two wells of The California Company in the foreground and the Company's camp

Simple Heater *Corrects Paraffin Trouble* in Gas Lift Wells

By WARREN BAKER
Staff Representative

IN fields that produce paraffin base oil, many experiments have been tried to reduce or prevent the collection of paraffin in the hole. The use of heat is an old method, and one of the most successful. There are many ways of heating to attain this result.

C. C. Carlisle, chief production engineer for the Prairie Oil & Gas Company, has worked out a simple heater which has been very successfully used on many wells. It is necessary that the wells be on gas-lift, but since most new wells today employ this method, this is not a great handicap.

On the gas intake line, usually a two-inch pipe, two joints of four-inch pipe is placed, covering the gas line and forming a jacket over it. The length of the jacket is not essential and depends to a great deal on the local situation and amount of heat desired. When first used, a packer and slip joint was placed at both ends, but it was found that the expansion of the two-inch and four-inch pipes under heat was about the same, so both ends are now being welded.

At one end is placed a two-inch steam intake connection coming from the boiler. Carlisle first put the drain or water outlet at the opposite end, depending on the pressure to force it out. However, in the more recent application of the system the drain has been placed directly beneath the steam intake. This makes it necessary for this end to be slightly lower than the other, for drainage purposes. The water outlet pipe can be run back to the boiler, bringing about a circulation of the water and no loss.

According to Carlisle, considerable skepticism was expressed by many over the probable results of the first experiment. It has been found, however, that only a few pounds of live steam is necessary to heat the gas to a temperature that will prevent the accumulation of paraffin in most cases. The gas input line between the heater and the well becomes far too hot to touch with the hand.

Solid paraffin is found mostly in the first two or three joints of tubing. The gas has sufficient heat left in passing these points to keep the paraffin melted and to permit the oil flow to carry it out. Before placing one of the heaters in operation the hole is cleaned of paraffin.

The heater has been used in the Borger field of the Texas Panhandle and in Wyoming. The Borger field offers a more difficult paraffin collection problem, due to its crude having a larger paraffin content. There the collection of paraffin is very rapid in the upper part of the hole where gas-lift is used.

More experiments probably have been made in the Texas Panhandle to combat paraffin than in any other place. Prairie Oil & Gas Company tried several methods before using the above described heater, which previously had been used by the company in Wyoming.

A method quite popular with the Panhandle operators was to use the "flow-devil," a tubing scraper, and Prairie Oil & Gas Company was one of the users of this device. It was necessary to run the scraper about once a day, and in addition to increasing the operating expense it also lowered the flow of the well while it was being cleaned. It was necessary to have two men to run the scraper, which merely scraped the paraffin away from the tubing, and being hollow permitted the oil to carry it out with it.

Prairie Oil & Gas Company's first attempt with heat in the Panhandle was the pumping of hot water, testing 200 degrees Fahrenheit, into the casing along with the gas. The water flowed out through the tubing with the gas. This seemed to remedy the paraffin question, but the hot water caused the casing to expand and raise the control head until the connections were being broken.

Most of the wells in the Panhandle maintain a connection so that the gas can be flowed through the tubing or between the casing and tubing, or reverse the flow, as shown in the accompanying illustration of the heater. Next, the flow was reversed, using the mixture of hot water along with the gas. The reverse flow was maintained only for about 20 minutes each day, after which the well was put back to normal flowing with dry gas injected between the casing and tubing. Later, the gas heater was tried and is now being used on many of the Prairie Oil & Gas Company's wells in the Panhandle.

In the Little Lost Soldier field of Wyoming, where the heater was first tried, a paraffin base oil of about 30 gravity is produced. The gas is put into the casing and the oil flowed out of the tubing.

Prairie Oil & Gas Company has found other valuable uses for the heater, especially in Wyoming, where the winters are severe and cause many interruptions on account of freezing. The gas often "froze" after having the temperature reduced when it passed through regulators. The same heater when placed in front of the regulator, gives the gas sufficient temperature to prevent its freezing. At the company's' control houses for gas lines the heater is placed where the gas enters the house.

The same results obtained with the use of steam may be secured by placing water in the jacket with a flame beneath for heating purposes.

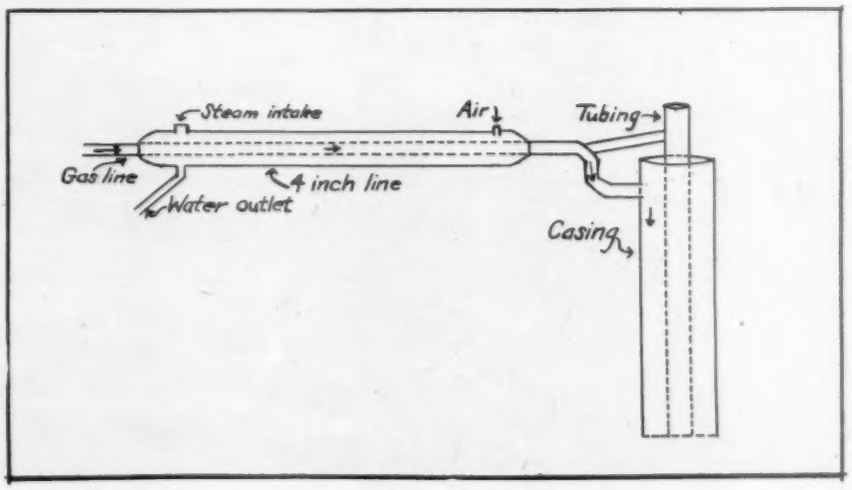


Diagram of heater used by Prairie Oil & Gas Company to combat paraffin on wells flowing by gas lift

Arc Welded Line Stands Rigid Tests; Process Economical

By J. F. LINCOLN

Vice President and General Manager, The Lincoln Electric Company

IN a small town in Louisiana there assembled on a hot August day, a small group of pipe line engineers for the purpose of witnessing tests of a new method of pipe line construction. For the test, five lengths of pipe, each 30 feet long, were laid on one-foot high skids and electric arc welded together. The line thus formed was tested with 1250 pounds of hydrostatic pressure. No leaks developed, though each weld was beaten with a heavy sledge. Not satisfied with this, one of the engineers removed all the skids with the exception of those supporting each end of the line. While the line was thus supported at its extremities a man jumped again and again on the middle of it. Still no joint broke or showed the slightest sign of leakage.

As the result of these severe tests the construction of the first major pipe line to be electric arc welded was started. This was only a year and a half ago. Today there are over 1500 miles of arc welded pipe lines completed or under construction in the West Texas field alone.

Strength is imparted to a pipe line by virtue of its arc welded joints because the welded joint is itself as strong, if not stronger, than the pipe metal it joins. This has been proven by many physical tests conducted by interested and disinterested parties from time to time. Far greater stresses have been satisfactorily placed on arc welded joints in structural work than ever occurs to a welded pipe connection. An incident which occurred in the construction of an arc welded line provides an excellent example of the strength of the arc welded joints.

In the construction of this particular line a river crossing had to be made. At the point of crossing the Ouachita River its banks were 60 feet high. The pipe was bent so as to reach the bottom of the river. Then the sections were welded, one after another, and strung across on pontoons. To hold the pipe to the bottom, specially designed heavy cast iron weights were bolted about the pipe. While sections were being strung across, the ropes that held two of the pontoons broke away and the swift current carried the pipe down the river where it was stopped after hitting some rocks. After getting the pipe back it was discovered that the arc welded joints were intact though the pipe itself was badly bent in many places. Figure 1 shows a construction gang vainly watching for bubbles indicative of leaks during a test after river crossing had been made.

Above: Figure 1.—A welding crew vainly watching for bubbles which would indicate leaks during a test after a river crossing had been made. Photos courtesy of the Big Three Welding & Equipment Company

Corrosion

Corrosion is the enemy of all pipe lines as the kinds of pipe used in these lines are corrodent to a greater or less degree. The more metal, in other words the greater the thickness of the pipe, the longer it takes corrosion to put it out of service. It has been found in sections of pipe with screwed connections that where conditions for corrosion are

equal, the pipe first fails at the joints. This is due to the fact that the thickness of the pipe at its jonits has been reduced by the threading necessary for the screwed coupling. Naturally, corrosion first breaks through the thinnest part of the pipe. No reduction in the thickness of the pipe is necessary in making a welded connection. If two sections of pipe, even with scarfed ends which form a V when butted, are welded together the weld metal fuses into the metal of the pipe and fills or more than fills the V, making a solid metal joint as thick and generally thicker than the pipe wall itself. When pipe sections are lap welded, the two sections of pipe fitting one into the other form even a greater metal thickness at the joint; the welding as above fusing metal into metal making two sections of pipe into literally one section. Thus it can be readily understood that a welded joint offers corrosion no greater opportunity for destruction of a line than the pipe itself.

Arc welded pipe lines are too new to have been exposed to corrosion long enough for destruction, hence it is, at this time impossible to give comparative data on the life of pipe ilnes with arc welded joints and pipe lines connected by other methods. It is, however, safe to asume that the arc welded pipe line will long outlast the other types.

Aside from the physical attributes of arc welding, the process also offers important economies in pipe line construction.

The actual joining of the pipe sections by means of the electric arc can be accomplished far faster than by any other welding method. On the eight-inch lines running from Corsicana to San Augustine, Texas, and in the Texas Panhandle district from Lafors to Electra, the welded operators averaged 25 firing line or rolling welds per day. The bell hole welding on these lines varied according to the contour of the country. The average per operator for these lines ran close to 15 bell hole joints per day. These short lines of welded pipe lengths are then placed in position over the trench and joined by bell hole welds which get their names because the welder operator requires a hole in the trench to enable him to weld clear around the pipe without moving the line as shown in Figure 4.

FIGURE 2

A typical crossing of an arc welded pipe line under a railroad. Photo courtesy of The Welding Engineering Company

Figure 3 shows a crew on the firing line four operators welding simultaneously while the helpers stand by ready to turn the pipe.

Such speeds with the electric arc are not exceptional. The averages obtained on these two particular lines included welding for four major river crossings, 14 railroad crossings, 12 designated state highway crossings as well as numerous creeks and several swamp crossings. A typical crossing under a railroad is shown in Figure 2.

The method of welding pipe lines varies only as required by topographical conditions. Pipe sections generally used are 20, 30, 40 or 60 feet long. The 40 foot and 60 foot sections composed of two 20-foot length or two 30-foot lengths welded together at the mill. A number of these sections are joined together in the field to form a 150-foot line or less according to the topography of the country by firing line or rolling welds. This method of welding is simply welding halfway around the pipe and then rolling the connected sections over and completing the weld.

The pipe for welded line construction is generally made with a bell end and a spigot end which when joined form a bell and spigot joint. Some pipe is manufactured with a welding dam on the spigot end which forms a joint as shown in Figure 5.

The welding of bell and spigot joints varies; on some lines the pipe is first tack welded together, as shown in mire, machines with 600 foot cables were moved to position on the opposite banks of the swamp.

FIGURE 3

A crew on the firing line. Four operators welding simultaneously while the helpers stand by ready to turn the pipe. Photo courtesy of The Welding Engineering Company

As the firing line welders progresses into the swamp the cable was played. In this manner the swamp crossing was Figure 6, to hold it in place and then a bead run around the joint. On other

FIGURE 5

A bell and spigot joint before welding. The spigot end shown has a welding dam. Photo courtesy The Welding Engineering Company

lines the joints are welded twice around. The first weld is known as the burning in bead and is generally practically flush with the pipe. The second bead is called the finishing bead. A portion of a burning in bead and also the start of the finishing bead are shown in the photograph of a partly finished joint, Figure 7.

The double beaded belt or spigot joint is generally preferred and most generally used. The double bead eliminates almost entirely the possibility of any pinhole leaks. Lines built have been remarkably free from any leaks and when discovered on test are easily fixed.

After the burning-in weld has been finished, a helper thoroughly cleans and scales the pipe in preparation for the finishing weld. Clean pipe is essential for both welds. For the first weld the pipe is scrubbed free of foreign matter and the oxide and slag is removed before the finishing weld is made. By welding twice around the pipe the possibility of pin hole leaks has been practically eliminated.

The welding equipment most generally used in pipe line construction by the electric arc process consists of gas engine driven welders of 300-400 ampere capacity similar to those shown in Figures 3, 4 and 8. The welding machines are generally mounted on separate wagons drawn either by horses or tractors. For ordinary welding, a short length cable is used by the welder operator but a longer length cable can be used when needed.

FIGURE 6

Showing portions of the burning in weld (lower quarter) and finishing bead (upper quarter.) Photo courtesy of The Welding Engineering Company

One of the advantages of the arc welding machine is its adaptability for use in the more inaccessible places such as swamps and canyons. With the use of the extra long cables such places can be reached by the welders without moving in the machine itself.

A 1200-foot swamp near Palestine, and one of the many, is a good example. After blocking the pipe on small boards that served as mats to keep the pipe from sinking into the mire, machines with 600 foot cables were moved to position on the opposite banks of the swamp. As the firing line welders progresses into the swamp the cable was played. In this manner the swamp crossing was welded in practically the same time it would have required to weld the same amount of pipe on high ground with the usual short cables. The long cables are likewise adaptable for use in other places such as canyons and steep hills where it would be difficult to move a machine.

FIGURE 4

Making a bell hole weld. Photo courtesy of The Big Three Welding & Equipment Company

FIGURE 7

Welding machines are generally mounted on wagons drawn by horses or tractors. Photo courtesy of the Big Three Welding & Equipment Company

A Gas Preheater *of* Simple Design

By H. L. KAUFFMAN

IN causing wells to flow by the use of the air- or gas-lift, it is often a very decided advantage to preheat the compressed air or gas by steam before it enters the well. So doing, for example, has made it possible to flow some of the low-gravity California oils, a thing that was impossible until the gas was preheated.

In this connection the following remarks made on this subject by H. C. Miller in a paper, "Mechanical Installations for Gas-Lift Pumping as Practiced in the California Oil Fields," presented in October, 1927, at the Fort Worth meeting of the American Institute of Mining and Metallurgical Engineers are of interest. Said Mr. Miller:

"In Cat Canyon, Santa Barbara County, California, oil of 11.5° A. P. I. gravity, so viscous that it will not flow at ordinary temperatures, is being flowed successfully from a depth of about 2900 feet *by the use of heated gas.* The compressed gas at a pressure of 475 pounds per square inch is heated by steam to about 200°F. in a preheater made out of a piece of 10-inch casing, four feet long. The gas passes through 38 tubes, three feet long, which are welded in headers and enclosed in the preheater, and is delivered to the well where the temperature at the casinghead is maintained at 190°F. The oil from the well has a temperature of 100°F. at the casinghead. Surprisingly small volumes of heated gas are required to flow this oil, the viscosity of which has been appreciably lowered by the heated gas. Two wells, producing respectively 275 and 350 barrels of oil daily are being flowed by 330,000 cubic feet per day of heated gas at a pressure of 500 pounds per square inch.

"Some low-gravity oils, in California, have also been flowed successfully by the use of preheated air. One well in particular, when flowing through three-inch casing from a depth of 2000 feet, flowed 250 barrels per day of oil of 16° A. P. I. gravity with 340,000 cubic feet of air at a temperature of 190°F. When the temperature of the air was raised to 300°F. and the tubing diameter increased to four inches, production rose to 325 barrels at an added consumption of only 60,000 cubic feet of air per day. In both cases, the normal working air pressure was 240 pounds."

In this same paper Mr. Miller also stated that other gas preheaters that had come to his attention were made of used 11⅝-inch casing, about 20 feet long, with a coil of two-inch pipe (bent so that the gas or air passing through it made three complete passes from end to end of the casing shell) inserted inside the casing—the ends of the coil passing through metal heads welded at the ends of the casing. In such preheaters, the oil or gas therefore traveled a distance of nearly 60 feet inside the heater. Also, it should be noted that the steam which surrounds the two-inch coil enters the casing near one end through a one-inch nipple and exhausts through a nipple of similar size at the opposite end.

It should not be inferred from the foregoing that preheating the air or gas used in causing the well to flow is applicable only to heavy viscous crudes such as those found in California: it will also serve to increase the productivity of wells yielding oils of high cold test.

Heating a gas before it is burned as a fuel also increases the efficiency of combustion. It is partly for this purpose that, for over four years Producers and Refiners Corporation at its Parco, Wyoming, refinery has used a gas heater of simple design on the main high pressure gas line furnishing fuel for the refinery; incidentally, a heater of similar design can be used to advantage in heating gas or air employed in causing wells to flow by the air- or gas-lift method.

Figure 1 shows a section of the preheater referred to in the preceding paragraph as being utilized by Producers and Refiners Corporation. Note that the preheater is made of 20-inch casing, with a welded head at one end; the other, bolted shut, with strips of wicking or packing used to tighten against the head.

The coil within the casing through which the gas at 250-pounds pressure passes is made of 52 lengths of one-inch extra heavy black pipe, 17 feet and two inches long, and 26 one-inch return bends, latter as follows:

8 pipe bends .....1½-inch radius
8 pipe bends .....3½-inch radius
6 pipe bends.....5½-inch radius
4 pipe bends.....7½-inch radius

The return bends are connected with the lengths of pipe by a one-inch pipe coupling, the connection being welded.

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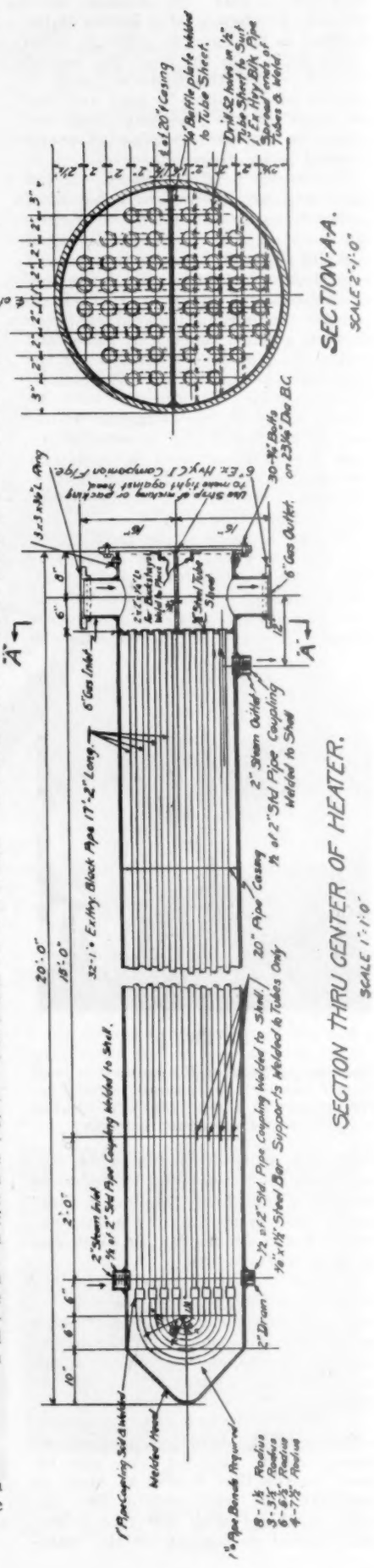

A Seismic Method
OF
Determining the Deviation of Drill Holes

By MARK C. MALAMPHY
Consulting Geophysicist

AS the average depth to which oil wells are drilled increases, the probability of the holes deviating from true vertical increases and the trouble due to these crooked holes becomes very great and remedial measures must be given due consideration.

It is left for others better qualified than the writer to determine the best methods of eliminating or at least reducing the deviation of drilled holes from true vertical. The purpose of this paper is to describe and discuss the relative merits of a method of determining the deviation of holes from vertical. The information obtained by this method, while it will not help to eradicate the evil except in an indirect manner, will give more accurate information as to the actual depth of the bottom or of any desired point in the hole, and it will also give the location of any point in the course of the hole relative to the location of the well on the surface. These two factors will be of extreme value to the geologist or engineer who is mapping the sub-surface strata and analyzing the relative production of the different strata and of different parts of each producing horizon. In addition, if the path of the drill is mapped at regular intervals during the course of the drilling, deviations from true vertical may be detected and corrective measures applied before the amount of deviation has become aprticularly serious.

Methods of Determining Path of Drill

There are several methods available for mapping the true course of the drill. The so called acid bottle test is perhaps the most familiar. In this method a bottle containing hydroflouric acid is lowered into the well to a certain depth and allowed to remain in that position long enough for the acid to etch a line on the glass. Assuming the bottle to take the slope of the hole at that particular point, and the acid of course remaining horizontal, the angle of the line etched on the glass will determine the slope of the well at that particular point. By making such measurements at a sufficient number of points, the slope of the hole may be determined. One of the difficulties of the method is in determining the orientation of the bottle. Obviously this orientation affects the determination of the direction of the slope. Since the hole may either go down in a spiral or on a slight continuous slant, or on any combination of the above, about all that is actually determined by this method is the fact that the hole is or is not approximately straight. The disadvantages of this method are many. The main advantage is in the cheapness of the equipment. However the time required to

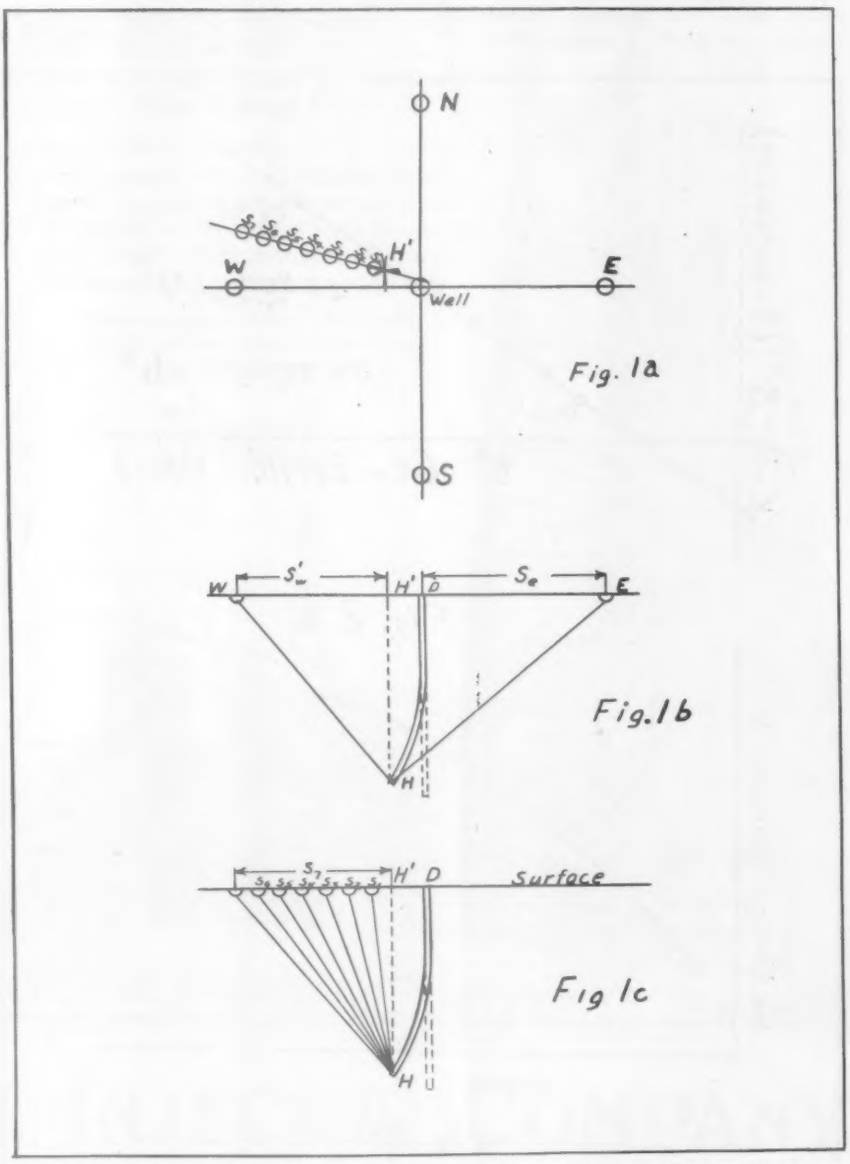

Figure 1. (a) *Plan sketch showing ideal location of shot points for determining deviation of hole from vertical. H' indicates the position on the surface directly above the point at which the detector is placed in the hole. This point is determined by arcs from the various shot points.* (b) *Vertical section along line EW showing crooked drill hole and path of the seismic waves to the detector.* (c) *Vertical section showing method of shooting profile to determine true depth and average vertical velocity.*

make a complete survey is considerable, and in the oil field, time is money.

A photographic method has been developed by a California consulting company which is quite an improvement on the acid bottle test. In this device, a pendulum enclosed in a housing with photographic equipment is fastened to the end of the drill stem and is lowered into the hole. The equipment is stopped at various points and a photographic record of the relative angle between the pendulum and the housing is made. This angle determines the slope of the hole at that particular point. The measurement of the slope is sufficiently accurate for the problem, but here again the orientation of the pendulum offers some difficulties. The only objections that may be offered to this method are the necessity of lowering the drill stem into the hole and the fact that it is an empirical method. In other words, the location determined for any one depth is dependent on all measurements at shallower depths, and errors, particularly those errors due to orientation, will perhaps be addative. The final result will give a very good value for the actual depth, but may be off by a greater or less amount in horizontal location of the position of the bottom due to errors in orientation of the apparatus.

The method which is to be described here will overcome certain of the objections to the photographic method. However there are certain logical objections to this method which must be considered. These good and bad points will be taken up in detail in the latter part of this paper.

The theory of petroleum seismology and the electrical type of field seismograph offer a satisfactory method of determining the location of the bottom of the hole and the entire path of the drill if desired.

If the seismic wave detector of an electrical seismograph is lowered into a drill hole to a certain depth, and if shots are placed at certain distances from the location of the well on the surface, then, if the shots are at equal distances to either side of the surface location of the hole, and if that point in the hole at which the detector is directly beneath the surface location, the time of arrival of the seismic waves from each shot point would be the same. If, however, the hole is crooked as in Figure 1, then the time for the shot from W would be less than the time from E. If we determine the vertical velocity of the formations, then the length of the path of the seismic waves can be determined from the time required for the wave to travel from the shot point to the detector. We may determine the depth to which the detector is lowered to a first approximation by means of a steel tape. Although this depth may be in error by a small amount, it will be identical for both shots. Using this depth and the length of path we may solve for the other side of the right triangle and determine the distance from H^1 to E and from H^1 to W where H^1 is the point on the surface directly above the point in the drill hole where the detector is located. Since we know the distance between E and W and the surface location of the hole D, we can determine the apparent deviation of the hole along the line EW. If now we choose another pair of shot points N and S, we can by a similar process determine the deviation of the hole along the line NS.

The first step is to determine the approximate value of the average vertical velocity of the seismic wave. This may be done as follows:

Let h_c be the chained depth of the detector in the hole.
S be the distance of the shot point from the well location.
l be the length of seismic path from the shot point to detector.

Then $l^2 = h^2_c + S^2$ (1)

Let t_n, t_s, t_e, and t_w be the seismic times from shot points N, S, E, W.
V_a is the approximate value of the average vertical velocity.

To a first approximation

$$V_a = \frac{t_n + l_s + l_e + l_w}{t_n + t_s + t_e + t_w} \quad (2)$$

The approximate position on the surface H^1 directly above the position of the detector in the hole H may then be determined as follows:

Let l_n, l_s, l_e and l_w be the length of seismic paths from N, S, E, W.
t_n, t_s, t_e, t_w be seismic times as above.

Then (3)

$l_n = V_a t_n$; $l_s = V_a t_s$; $l_e = V_a t_e$; $l_w = V_a t_w$

The distance on the surface point directly above the detcetor from each shot point may then be determined by the following formulas.

$S^1_n = \sqrt{l_n^2 - h_c^2}$; $S^1_s = \sqrt{l_s^2 - h_c^2}$ etc. (4)

By drawing arcs from the various shot points as centers and using the distance of S^1 just determined as radii, the inter-

(Continued on page 70)

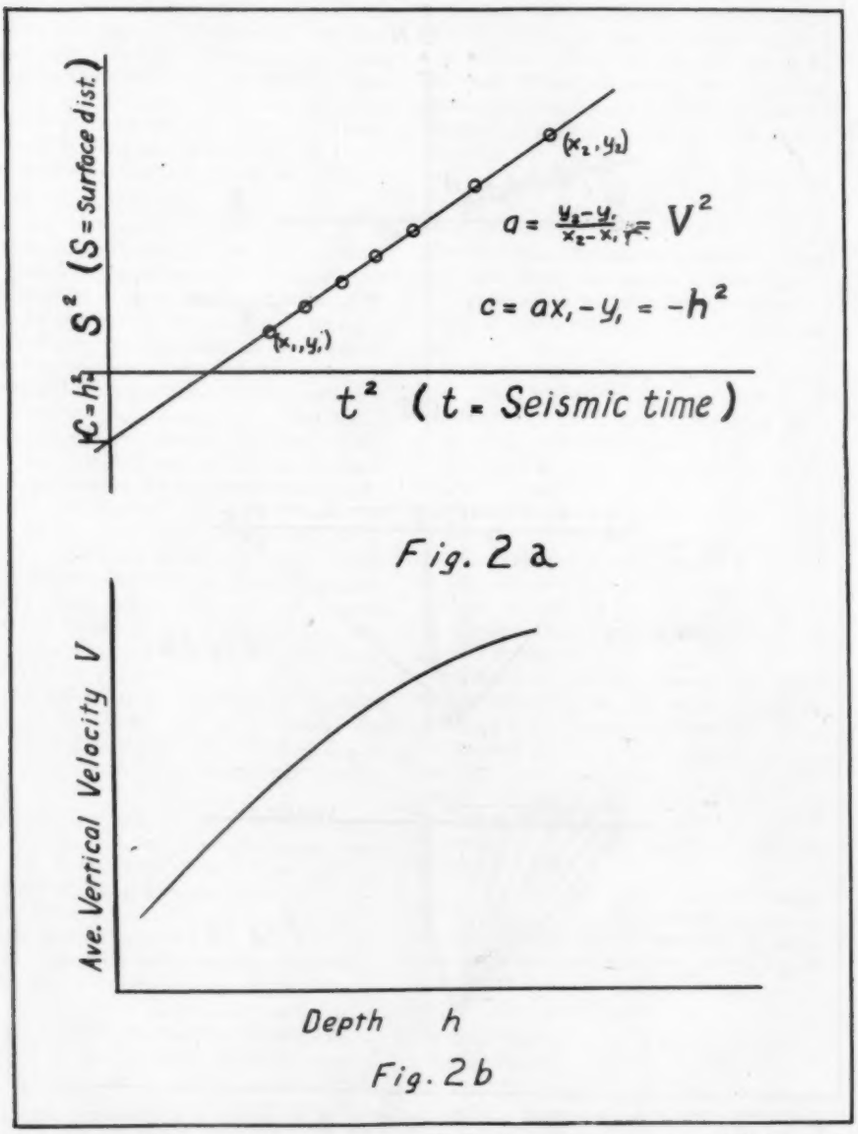

Figure 2. (a) Graph plotted from data obtained by profile, showing method of obtaining actual depth and average vertical velocity. (b) Graph representing relation between average vertical velocity and depth. Note: If strata having radically different values of vertical velocity are present, this curve will not be a smooth line as indicated but will be a jagged broken line.

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PARKERSBURG EQUIPMENT THE STANDARD FOR COMPARISON THE WORLD OVER

"Black Diamonds"
Used in Core Drilling

Supply of "Carbons" comes from eastern provinces of Brazil

By RICHARD A. JONES
Geologist

ACROSS the seven seas into every continent of the globe, and to the scattered islands of the ocean, reach the far-flung activities of the oil industry. Strange foreign names and places are familiar to the men who search for oil, or who furnish the materials used in the search for oil. White man, yellow man, black man—between all races and nations the actions and reactions of the petroleum business pass back and forth.

Illustrative of this interlocking internationalism of oil is the fact that the diamond drill (formerly exclusively a mining tool, but now an accepted part of the American petroleum industry in core-drilling for structural information, and even for drilling-in wells) is dependent entirely for its continuation of activity, and for its very existence, on a foreign land. The vital center, the starting point of the business of diamond core-drilling, is in the eastern provinces of Brazil, a region far distant from the oil fields of the United States.

Three Classes of Diamonds

The chemical element, carbon, enters into many combinations, gaseous, liquid, and solid. Over 300,000 compounds of carbon, organic and inorganic, are known to chemistry. Carbon dioxide gas and natural gas contain the element; petroleum is a hydrocarbon combination; the limestone which forms so large a part of the sedimentary rocks of the earth, is calcium carbonate; all vegetable and animal tissues contain compounds of carbon, the carbohydrates.

The most remarkable characteristic of this versatile element is that carbon, which may combine to form invisible gases or splashing liquids, is, when purest, the diamond—a solid that is harder than any other known substance. Three classes of diamonds exist:

1. The crystalline, white diamond, the sparkling jewel that has been so highly prized since history began.
2. The "Bortz" diamond, an impure crystalline form, useless for jewelry.
3. The black diamond, or "carbonado."

The origin of the diamond in nature is more or less obscure. Various laboratory experiments have been performed, in which miniature diamond crystals have been created; and, from the information gained by these tests, it is believed that the diamond originates from the crystallization of a solution of carbon in a fused mass of igneous rock, under conditions of enormous heat and pressure. Perhaps the electrical forces of the interior of the earth have had something to do with the concentration of carbon into the diamond.

Black Diamonds or "Carbonados"

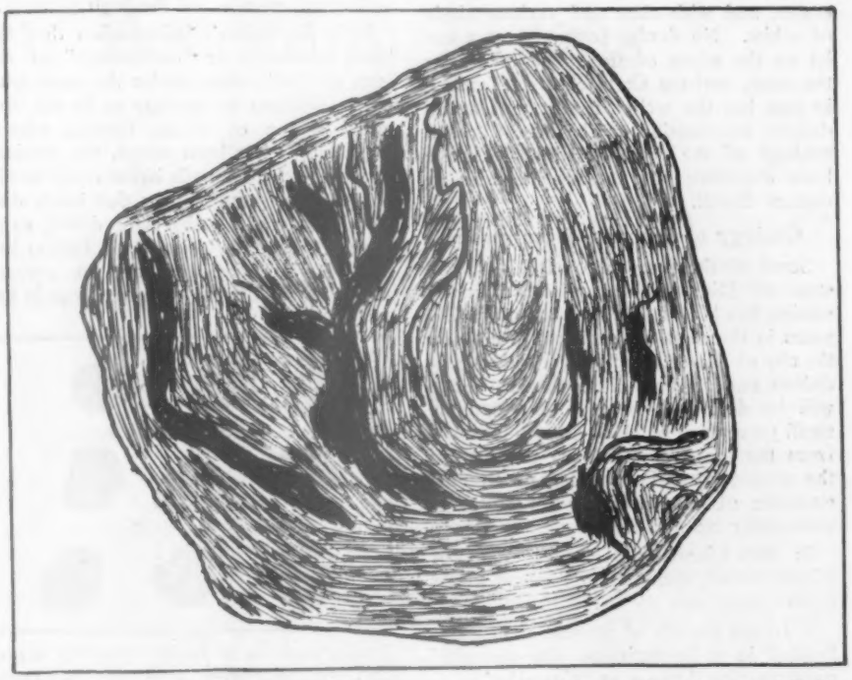
The "black diamond" or "carbonados" is the subject of the present article, for it is this type of diamond which is used in the diamond core-drill. The name "carbonado" is that originally given the black diamond by the Portuguese of Brazil, in which country it principally occurs. The black diamond is also known as the "industrial diamond," or more simply, in trade language as the "carbon."

The "carbonado" is a black material, with a minutely crystalline structure, although it is so nearly structureless that it was until recently regarded as without crystalline form, and may be so considered for all practical purposes. It is somewhat porous or cellular; resembles charcoal in general appearance; is opaque; and has less specific gravity than the white or jewel diamond.

The mineral is superior to the white and "Bortz" diamonds for utilization in the bit of the diamond drill, because it is harder than the other types of diamond, and because it has no cleavage. It is this latter characteristic which renders it so valuable for core-drilling. Rough fragments of the more crystalline forms of diamond are fully hard enough for core-drilling, but even the hardest of these may split along cleavage planes. On the contrary, the "carbonado," having no cleavage, is not likely to fracture under the strain of rock cutting and rotation of the drilling bit.

From Eastern Brazil

The commercial supply of carbons for core-drilling comes almost exclusively from eastern Brazil. The island of Borneo in the East Indies produces some black diamonds, and other places widely scattered throughout the world now and then yield a few of this species of diamond. In the famous, white diamond mines at Kimberley, South Africa, "carbonados" have been thought to have been discov-



Largest carbon or black diamond ever found. Discovered in interior of state of Bahia, eastern Brazil, in 1895. Weight, 3078 carats, or approximately one pound, 12 ounces. Actual size. Drawn from photograph in pamphlet of R. S. Patrick Carbon Company, Duluth, Minnesota

ered at times, but the stones on close examination have usually been found to be composed of ilmenite, an oxide of iron and titanium.

In Brazil the chief black diamond mining district is in the state or province of Bahia, in the eastern part of the country, fronting the Atlantic Ocean. Some mining for "carbonados," but in a minor proportion, is also carried on in the state of Minas Geraes, joining the province of Bahia on the south.

The Paraguassu River, flowing almost due eastward, empties into the Atlantic on the west side of the large bay, on the opposite or eastern shore of which stands the city of Bahia. The most prolific diamond-bearing localities are on the upper waters of the Rio Paraguassu, about 200 miles inland from the port of Bahia and the Atlantic coast. The region is in the tropics, between 500 and 600 miles south of the equator.

General Geology

From Cape San Roque, the northeastern tip of Brazil, through that country and through Uruguay, to the mouth of the Rio Plata, at Buenos Aires and Montevidio, extend broken mountain ranges, trending northeast and southwest, and paralleling the Atlantic Ocean. These maritime ranges consist primarily of metamorphic and crystalline rocks. Some of the rocks may belong to the older divisions of the Paleozoic period, but the greater part of the series probably pertains to the very ancient Archean system. It is in this irregular, mountainous country, diversified by plateaus, and by flat lands along the larger rivers that the black diamond mines of the state of Bahia occur.

The predominant sedimentary rocks of the mountains are micaceous quartzites, interbedded with sandstones and conglomerates, and with slate and various kinds of schist. No doubt, younger strata exist on the edges of the ranges or along the coast, perhaps Cretaceous or Tertiary in age, but the writer has at present no definite information on the detailed areal geology of the region. Oil shales have been discovered at various localities in eastern Brazil.

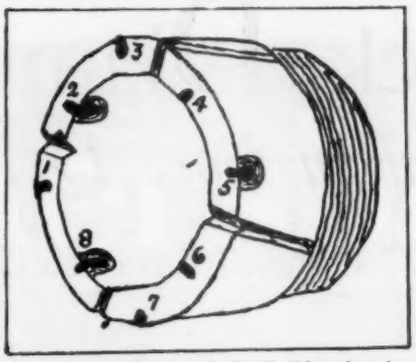
Geology of Diamond Occurrence

South of the province of Bahia, in the state of Minas Geraes, where diamond mining has been carried on for about 200 years in the district roughly centering on the city of Diamantina, the geological conditions under which diamonds are found will be described below. A relatively small percentage of black diamonds comes from the province of Minas Geraes, but the geological circumstances of the occurrence of diamonds have been more thoroughly studied there.

In the Diamantina district, state of Minas Geraes, diamonds are found under three conditions:

1. In the gravels of present rivers, embedded in a ferruginous, clay-cemented conglomerate, known as *"Cascalho."*

2. In terraces, called *"Gupiarras,"* in a similar conglomerate, accupying higher levels of the present river valleys.

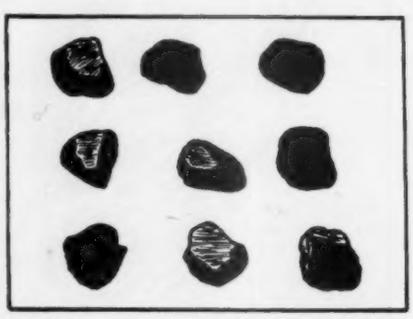


A Sullivan Diamond Drill Bit, showing how the black diamonds or carbons are set. From "Diamond Drilling for Oil," Sullivan Machinery Company, Chicago

3. In a high, plateau deposit, named *"Gurgulho,"* in the red clay, which cements a coarse, surface conglomerate.

Under all three of the above conditions, the diamonds are associated with other heavy minerals, such as quartz, magnetite, garnet, tourmaline, and others. Geologists who have made a study of the diamond occurrences believe that the high plateau, or "Gurgulho," deposits are probably the original diamond-bearing material; and that the diamond-carrying conglomerates and gravels of both the valley terraces and river beds are reworked material, transported to their present position from higher levels. This opinion is based on the facts that the heavy minerals associated with the diamonds in all three classes of occurence are the same, but that in the lower diamond deposits the minerals accompanying the diamonds are progressively more worn, both mechanically and chemically, as the topographic level of occurrence becomes less, than the relatively fresh minerals in the gravels and conglomerates of the high plateaus.

It is the writer's information that the black diamonds or "carbonados" of the state of Bahia occur under the same general conditions of geology as in the diamond region of Minas Geraes, where, however, as has been stated, the production of black diamonds is relatively small. Some underground mines for black diamonds, entered by shafts or drifts, exist in the "carbonado" district of Bahia; but the core-bit diamonds are at present chiefly obtained from concentrations in the "Cassalho," or river-bed gravels and conglomerates.



Graded carbons or black diamonds, actual size, for diamond drill bit. Average weight of stones shown above, three carats. Drawn from pamphlet of R. S. Patrick Carbon Company, Duluth, Minnesota

Method of Mining

Mining for black diamonds along the Rio Paraguassu and its tributaries in the state of Bahia is principally carried on by primitive "panning" or "washing" of the gravel, conglomerate, sand, and silt of present river beds, and of old river beds, now abandoned by streams. It is placer-mining in its simplest form, such as was done by the "Forty-Niners" of California in their search for gold.

The debris carrying the diamonds is washed in large pans. Modern methods are almost unknown. Dynamite is used at times, but a hand-drill is rare; and a miner is well equipped if he possesses two pans of wood, one large and one small; a crowbar; and a pick and shovel.

Efforts to introduce modern mining procedure have been made in the past, but have not so far been successful or practicable. In the first place, the deposits of black diamonds are scattered, and no large concentrations have been found in any one place, so that mining operations must be kept mobile, constantly ready to move on to new localities. The expense of moving heavy dredges, for instance, continually over rough country without roads, and up and down all manner of streams, large and small, is too great an investment for the returns from the mining. Furthermore, the labor, chiefly native negroes, receives very small wages; and the slow and toilsome processes of placer mining now employed in the state of Bahia are more profitable than the use of modern machinery would be.

Several thousand miners are engaged in securing black diamonds in Bahia. They live in small, roughly built stone huts, or in mud and wattle houses with thatch roofs. The miners, from long experience, are adept at picking out the "carbonados" or black diamonds from the debris in the washing pan.

Buyers for American companies purchase the stones in centrally located towns. One such marketing place is the town of Andarahy. Others are Lencoes and Santo Joao de Paraguassu. The largest black diamond ever found in the workings in the state of Bahia was discovered in 1895, and weighed 3078 carats, or approximately one pound and 12 ounces.

Setting Diamonds in Core Bits

The black diamonds, as originally purchased in Brazil, are naturally of varying size and quality. Before being suitable for use in core-drilling, the diamonds must be graded and broken and prepared to the proper sizes. Stones weighing from two to six carats are the sizes generally used in diamond drilling.

Usually eight black diamonds or carbons are set in a diamond drill bit. Four stones, the strongest, in order to maintain the gauge of the hole, are set on the outside; and four are set on the inside. The carbons are placed at equal distances around the face of the bit.

The diamonds are inserted in the steel bit in holes, which are carefully prepared to fit the size and shape of the stones. A piece of copper wire or a horseshoe nail

is sometimes used as calking, when a diamond is especially irregular and difficult to set. The stones are set flush with the face of the bit, and project slightly on the side, having a clearance of from 1/64 to 1/32-inch or more, dependent upon the character of the rock which it is proposed to drill with the bit. Skill is required in setting the carbons. They will stand strong, steady pressure, but may be shattered by a slight blow; and care must be taken not to strike the diamonds while making up the diamond drill bit. After the stones are all properly set, water grooves are cut across the face of the bit to make easy the removal of cuttings by the flow of water.

Notable Achievements of Diamond Drill

The diamond drill has to its credit notable achievements in the oil industry. Many structures have been found by core drilling that were not revealed by surface geology. Sometimes the diamond drill has shown the subsurface structure to be appreciably different in details, important in the matter of locating a test well most advantageously, from the structure mapped on strata outcropping at the surface.

The writer has no exhaustive information on how many pools have been located by the information furnished by the diamond core drill. However, he is informed that the diamond drill located the "high" of a structure, on which a well found a flow of 200 barrels daily at a depth of 2066 feet in the Alcorn district, Oklahoma, near the Tonkawa field. It is also said that a test on a structure in Payne County, Oklahoma, defined by the diamond drill, opened up a Wilcox sand pool. If full data were available, it would, no doubt, be found that the subsurface mapping, made possible by the use of the diamond drill, has been of great importance in finding or developing various oil fields.

In addition to structure prospecting, the diamond drill has made a good record as a production rig. In the Tampico district of Mexico especially, wells have been brought in with the diamond drill. Among others, International Petroleum Company's Toteco 5, in the "Golden Lane" of the South fields of Tampico, was completed with a diamond drill rig, making an initial production of 15,000 barrels daily from a total depth of 1842 feet.

The diamond drill has dug many deep holes. In the oil regions of the United States, holes have been carried by the diamond drill to depths beyond the ordinary. One wildcat in Oklahoma, begun with standard tools, was taken over by the diamond drill and carried to 5000 feet. However, it is in the gold fields of South Africa that the deepest diamond drilling has been done. In the vicinity of Johannesburg at least four diamond drill holes have been sunk over a mile deep in the earth, having been completed at depths of 5560, 5582, 6340 and 6700 feet. There is no reason why similarly deep holes could not be put down in the oil fields of the United States to determine the character and production possibilities of deeply buried sediments.

As improvement in machinery and technique continually advances and as the value of core-drilling is more and more widely recognized, the diamond drill presents constantly greater possibilities of service to the oil industry in locating subsurface structures and in furnishing geological information and correlations from the perfect cores of the drill, often carrying fossils that identfy the formations penetrated.

The "carbons" or black diamonds found in the distant interior of the state of Bahia in Brazil, and which make possible the diamond drill, show that the world is, after all, very small, and that countries and nationalities are interlocked in a most surprising manner in the exploitation of the earth's natural resources. What oil man would have dreamed 20 years ago that a most valuable phase of the petroleum industry in the United States in the future would be dependent upon the occurrence and finding of black diamond mines in Brazil, and upon the diligence of South American miners in washing out the diamonds from the gravel and sand of the far-away Paraguassu River?

Bureau Reports on Rock Creek and Adjacent Wyoming Areas

Washington.—The results of a geologic investigation of the Rock Creek oil field, nine miles southwest of Rock Creek, Wyoming, on the Union Pacific Railroad are set forth in a Geological Survey report just published by the Department of the Interior. Several near-by anticlinal folds which have been prospected for oil but from which commercial production has not yet been obtained were also investigated. This report is numbered Bulletin 806-D.

Oil was discovered in the Rock Creek field by Ohio Oil Company in May, 1918. Between the discovery date and December 31, 1926, the field had produced between 9,000,000 and 10,000,000 barrels of oil of 35° Baume gravity. A small part of this yield was obtained from what is believed to be the Wall Creek sand, but most of it has been obtained from the Muddy sand in the Thermopolis shale and the upper and basal Cloverly sands at a depth of 2,650 feet or more from the surface. Deeper sands underlie the Rock Creek dome and offer possibilities for production. The producing area of the Rock Creek field is confined to narrow strip a mile or less in width and extending three miles in a general north-south direction along the crest of the Rock Creek anticline. The anticline was mapped for 18 miles, however, and is known to extend farther south. On its crest, about six miles south of the Rock Creek field, is a narrow bulge known as the Dutton Creek dome. The closure of this dome is less than 1,000 feet, whereas the closure of the Rock Creek dome is about 2,000 feet. Four miles south-southeast of the Dutton Creek dome is the Cooper Cove dome, another bulge of about the same structural shape and size as the Rock Creek anticline. Both Cooper Cove and Dutton Creek domes have been tested for oil and gas, with only slight success. One well on Dutton Creek dome was reported to have produced about 60 barrels of oil from the Muddy sand, but wells on the Cooper Cove dome have revealed only small shows of oil and gas.

Medicine Bow anticline, about 10 miles northwest of the Rock Creek field, is a pronounced symmetric fold about seven miles long and three miles wide, completely encircled by a prominent sandstone hogback. This fold has a closure of more than 2,000 feet, but its apex is about 2,000 feet lower than that of the Rock Creek dome. Promising shows of oil have been encountered in testing Medicine Bow anticline, and a production of 200 barrels a day for several days was obtained from one well.

The West Rock River anticline and the South Foote Creek anticline are narrow elongate folds that trend northeast, beginning about two miles northeast of Rock Creek field. Some unsuccessful prospect drilling has been done on these anticlines. The small uplift of the Little Medicine Bow dome in Section 23-21n-28w, has not been tested. The Geological Survey report suggests the possible existence of an anticline northeast of the post office of Arlington and southwest of Rock Creek dome. The existence of this anticline can be established only by core drilling.

Specially Equipped Car Aids Carrying Safety Message

By WALLACE DAVIS
Staff Representative

OFFICE headquarters of Oklahoma Natural Gas Corporation's department of safety is transferred from one field to another nearly every week in the year. R. L. Dowden, superintendent of safety for the organization, saw advantages of making the department portable a year or so ago. The plan worked valuable results, and the office has been on wheels ever since.

For his job, which covers the properties of Oklahoma Natural Gas Corporation in Kansas, Oklahoma and Texas, the safety engineer has outfitted an automobile with every item necessary to rendering first aid treatment personally, teaching safety to employes in the field and to illustrating his work with motion pictures pertaining to oil field safety.

While he is almost continually travelling through the fields in the interest of safety for his company he makes two complete tours of properties twice annually for the purpose of presenting safety pictures in connection with his training course. He is equipped on these trips with a motion picture camera and "silver sheet," which are furnished by the safety section of the Mid-Continent Oil & Gas Association. A new series of safety films are issued twice annually by the association, and, while the average company's safety committee in the various districts are receiving their camera, screen and films by express, Dowden is carrying his personally.

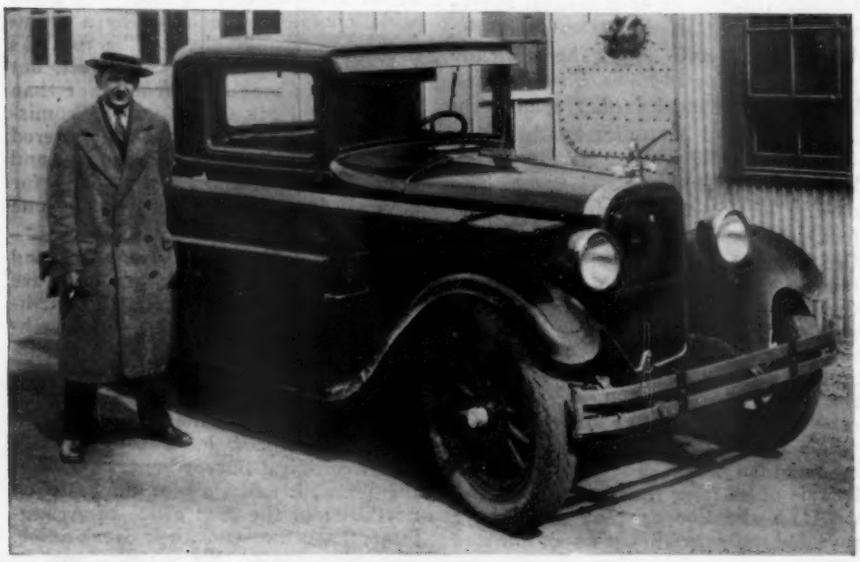
Commenting on the work being done by R. L. Dowden, Safety Director Don Wallace of the association says: "This type of work has been of unlimited value to our safety program. Such cooperation saves the association the expense of sending the equipment and films to this particular company, and this type of direct presentation is making a better impression on the men in the field. Apparently more companies are planning on taking up a like policy of handling safety work, which would mean considerable progress for the safety section of the association.

When Dowden has completed his tour, the films and equipment is returned to the safety section at Tulsa for use by other companies and picked up with the issuance of new films.

The accompanying photograph shows his running-board equipped with a case for motion picture equipment and first-aid kits. The hook-up on the car fenders is the case for carrying the motion picture screen. With the arrangement of the latter, it can be hung at any convenient building on any lease, unrolled, and the show is ready to start. The pictures shown include first-aid training, duplications of different outstanding accidents happening in the different districts, and any other pictures pertaining to the oil and gas industry which will tend to promote safety.

Dowden has found unusually good results from his program of handling safety. All of the superintendents, gang pushers, field foremen and men on miscellaneous jobs have become interested in the meetings, which are held monthly in the various districts, and look forward to the next meeting with much personal interest. Many letters he has received from field superintendents stressing their opinion as to the importance of field safety meetings and the interest displayed by the men after such meetings serve as proof of his cooperation with the safety division of the association.

And so this "Doc" of the field, professor of safety, movie man presenting Old Man Bonehead in "Hazards," traveling salesman for the anti-accident idea, or what have you, has created a new policy in safety work that bids fair to spread further among major companies.

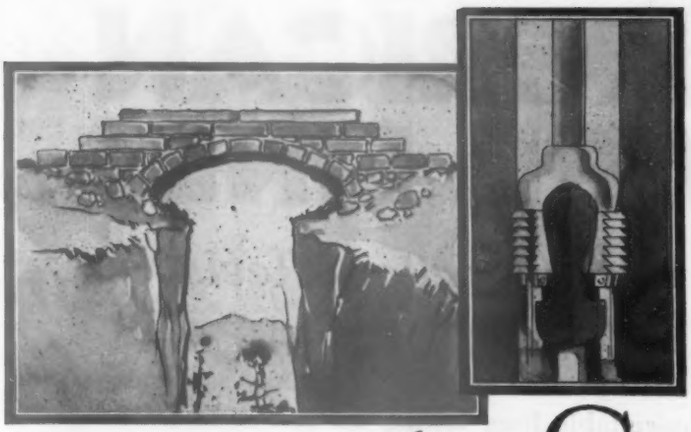


R. L. Dowden and his Safety Car

Pacific Coast Stocks Show Up-trend

Los Angeles.—Stocks in the Pacific Coast territory increased 4,088,354 barrels during March, according to figures compiled by the San Francisco office of the American Petroleum Institute. The major increase in stocks was in light crude oil, 20 degrees A. P. I. or better, which amounted to 2,090,624 barrels. This represents an increase from 20,215,802 barrels March 31, 1928, to 25,172,456 barrels at end of March, last. Heavy crudes, below 20 gravity, increased 1,202,817 barrels in March, while the gasoline stock increase was 1,020,233 barrels, bringing total gasoline stocks on the Pacific Coast to 13,310,923 barrels, compared with 14,779,259 barrels one year ago, a net decrease for the year, as stocks were drawn up for several months in the past. Naphtha distillates also increased slightly while miscellaneous stocks declined.

The daily average production of crude oil in California during March was 784,669 barrels, compared with 796,454 barrels in February. Eighty-one oil wells were completed in March with a total initial production of 81,046 barrels, while 27 drillers were abandoned as dry holes, and 34 old producers were abandoned. At end of March, 649 wells were drilling against 666 wells at end of February, and compares with 520 drilling wells averaged for the state during year of 1928.



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CONTINENTAL

Say you saw it in The OIL WEEKLY

Markets--Production--Crude Prices

H. J. STRUTH, *Staff Economist, Houston, Texas*

California and Oklahoma Send Daily Average Up

A SHARP gain of 56,800 barrels in daily average crude production last week was not wholly unexpected. It was natural to anticipate a considerable increase at this time because of pre-curtailment preparations in the various fields of California. The fact that proration would be effective on April 22 in California was sufficient reason for many operators to boost their output to some extent. Actually, there was a gain of 20,400 barrels there last week. This combined with a natural proration-gauge increase in Oklahoma, resulted in the sharp gain recorded for the week ending April 20. As a matter of fact, if California operators had really indulged in a wide open pre-curtailment spree, and Texas had shown an appreciable increase, a gain of 75,000 barrels might have resulted. While last week's gain cannot be said to reflect an unfavorable turn in the crude situation, having undoubtedly resulted purposely, it furnishes a concrete example of the the necessity for absolute production control. Last minute reports from California indicate that proration orders have been issued to all operators affected and are expected to result in an immediate decline in output of the state. If a material decline is recorded in California immediately, it is indicated that the national daily average for the week ending April 27 will show a decline of more than 100,000 barrels. At any rate, the curtailment movement is getting into full swing and it is up to California to make the movement unanimous.

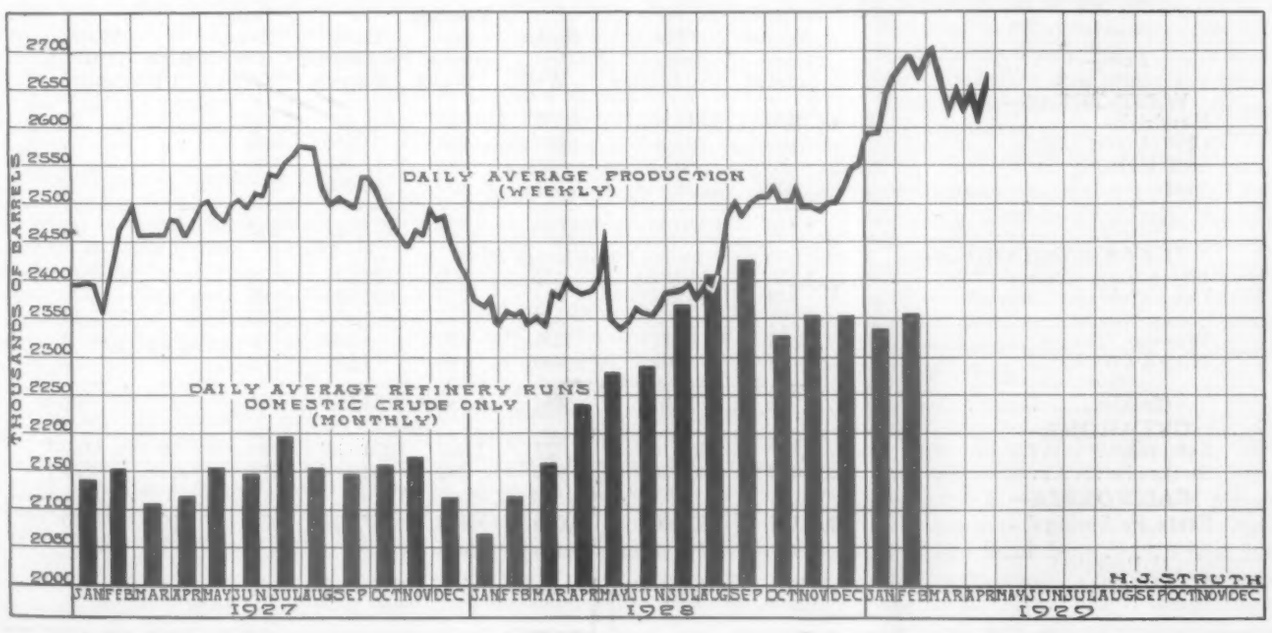
The accompanying table shows that the excess over the daily average production of last year is now 211,838 barrels, compared with 155,038 barrels in the preceding

HOW LAST WEEK'S DAILY AVERAGE PRODUCTION COMPARES WITH AVERAGE OF 1928

	Daily Average Year 1928 (Bureau of Mines Data)	Daily Average April 20, 1929 A.P.I. Wkly Prod. Rept.)	Excess
Oklahoma-Kansas	786,585	782,700	[1]3,885
Texas-Louisiana-Arkansas	849,205	908,850	59,645
California	633,831	796,600	162,769
Balance of United States	190,391	183,700	[1]6,691
Total United States	2,460,012	2,671,850	211,838
Mexico-Central and South America	561,339	609,249[2]	47,910
Grand total	3,021,351	3,281,099	259,748

[1]Bold figures indicate below 1928 average. [2]As of March 30—latest date available.

DOMESTIC PRODUCTION AND REFINERY RUNS



week. Since Oklahoma will undoubtedly show another material decline during the present week, it is not difficult to realize what earnest effort on the part of California operators will accomplish to materially reduce this excess. While California expects to affect an immediate reduction of 100,000 barrels daily, it is probably too much to expect within the first week of operation of the curtailment plan. However, if California is successful in reducing its output, say 70,000 barrels during the present week, and Oklahoma registers a decline of 30,000 barrels, with a possible decline in Texas of 6,000 barrels, the aggregate daily production could easily decline to 2,565,000 barrels, or a net decrease of more than 100,000 barrels in one week. California's excess is now 162,769 barrels daily, which fact makes it more than ever imperative that the curtailment plan meets with the wholehearted support of operators there. Since proration schedules were devised several weeks ago, when California's output was somewhat lower, it is not unreasonable to expect a decline of considerably more than 100,000 barrels a day within the next two weeks. Such results, combined with successful proration in Oklahoma and West Texas, will soon wipe out the excess and restore confidence in the immediate future of the industry.

California Curtailment

Proof that curtailment is in full swing in California is evidenced by the fact that many of the large companies have pinched in huge quantities of their production. At Elwood, Rio Grande Oil Company and Barnsdall Oil Company have pinched in their large producing wells, recently completed, and a committee of engineers are on their properties studying the effect upon these wells. Among the larger companies mentioned as having already reduced their production are Chanslor-Canfield-Midway Oil Company; Marland Oil Company; General Petroleum Corporation; Pacific Western Oil Company; The Texas Company; Shell Oil Company; Rio Grande Oil Company; Barnsdall Oil Company; Standard Oil Company of California; Union Oil Company; Richfield Oil Company; Wilshire Oil Company; George F. Getty, Inc., and Universal Consolidated Oil Company. Reports from California state that the majority of the larger companies have taken steps to shut in their production, also that proration will be extended to Northern California fields during the present week. Under the order issued by the umpire, production in all fields affected will be cut back twice a month to bring the total output to a figure not greater than that of a certain percentage of the February output. This ruling will hit new wells hard and cause them to be pinched in after a short test. Light oil has been going into storage in large quantities during the past three months and it is expected that this accumulation will stop at once, with the chance of withdrawals from storage considered good.

Long Beach

Curtailment at Long Beach marked the first time in the history of the field that anything was ever accomplished in the line of conservation. It is regarded as a distinct achievement and partially controls production in a townlot area which has been very stubborn to handle.

Light oil has been going into storage in large quantities during the past three months and it is expected that this accumulation will stop at once, with the chance of withdrawals from storage considered good.

Total stocks of crude and all products in the Pacific Coast territory increased more than 4,000,000 barrels during March, according to the latest report of the American Petroleum Institute, bringing stocks at the end of the month to 152,029,958 barrels. The total stock increase for the first three months of the year has been 12,029,064 barrels. Light oil stocks increased 2,090,624 barrels during March, heavy oil stocks climbed 1,202,817 barrels, while gasoline storage jumped 1,020,233 barrels to 13,310,923 barrels.

The O'Connell zone at Santa Fe Springs has struck its stride and it now seems that curtailment did not come too soon to prevent a sharp rise in production. Even the Clarke zone furnished a large producer, the first this formation has given. The deepening of Buckbee producers to the still deeper zones would have resulted in a large initial production. Few wells have been shut down and it is expected that those now drilling will be finished.

Gasoline in California is showing a slightly stronger tone, with both the wholesale and retail prices remaining firm.

Oklahoma Gains

Oklahoma registered a gain of 25,200 barrels last week, as a result of the regular bi-weekly proration gauge of the Seminole district. Gains were recorded in Seminole, Bowlegs, Little River, Earlsboro, St. Louis, Maud and Mission. One discouraging feature in Oklahoma during the past week was the successful completion of numerous wildcat operations. Apparently, wildcatting is still proceeding at a feverish pace and is having a dampening effect upon the general situa-

Details on Critical Fields

Pool—	Oil Wells Completed	Total Initial Production	Initial Per Well	Number Producing Wells	Daily Production Barrels	Daily Prod. Per Well	Rigs Up	Wells Drilling
WEST TEXAS—								
Hendricks	566	3,014,805	5,327	576	148,600	258[1]	3	23
Church and Fields	189	203,465	1,077	187	25,855	138	.	.
Gulf-McElroy	72	56,615	786	71	12,760	180	1	2
Yates	309	2,025,350	6,571	304	88,450	291[1]	2	5
Totals	1,136	5,300,235	4,666	1,138	275,665	242	6	30
TEXAS PANHANDLE—								
Hutchinson County	1,156	550,760	476	1,009	26,695	26	3	18
Gray County	348	143,785	413	335	28,645	86	13	46
Carson County	191	62,285	326	161	6,450	40	7	15
Wheeler County	45	14,775	328	36	660	18	3	9
Moore County	13	6,445	496	11	1,895	172	1	10
Totals	1,753	778,050	444	1,552	64,345	41	27	98
OKLAHOMA—								
Seminole	1,887	2,306,164	1,222	1,502	278,138[1]	185	19	169
St. Louis	412	402,394	976	342	108,744[1]	318	11	71
CALIFORNIA—								
Santa Fe Springs[2]	174	537,000	3,086	128	137,000	1,070	30	160

(1) Prorated.
(2) Includes deep production only. For field total add 230 wells and 25,000 barrels.

Tidewater Will Build Refinery On Houston Channel

HOUSTON. — Tide Water-Associated Oil Company, through its active refining subsidiary, Tidal Refining Company of Tulsa, contemplates erection of a refinery at Houston, construction work to begin soon enough for the refinery to be in operation during 1930.

F. M. Hutchinson of Houston, who obtained an option on the Postel 700-acre tract at Deer Park about 30 days ago from the Postel estate, has assigned his option on this piece of ground to Tidal Refining Company. Transfer of the property involves $455,000 or better.

According to C. R. Barton of Tulsa, vice-president of Tidal Refining Company, the land, which has a frontage of approximately 4500 feet on the Houston Ship Channel, will be used for terminal as well as refinery purposes. In this connection, Tide Water Oil Company, which controls the refining subsidiary, probably will dispose of a portion of its 25,000-barrel daily Mid-Continent production at the Houston refinery. As Tide Water Associated Oil Company has no pipe line from the Mid-Continent to Houston, carrier lines of other companies will be used for transportation of the oil to Houston. A similar means, together with utilization of tank cars, will be employed to move Tide Water Oil Company's 5000-barrel daily production from West Texas districts. The companies of Tide Water-Associated interests do not contemplate immediate construction of any pipe lines to Houston from West Texas or the Mid-Continent.

Tidal Refining Company's first unit at the Houston refinery will have a 15,000-barrel capacity. The design of plant that will be used was not known to Barton, but general practice of the Tide Water-Associated Oil Company's subsidiaries elsewhere has been to build the "tube and tank" systems protected under the Ellis patents. Present plans known to Barton merely specify that it will be a topping and cracking plant. Cost of the first unit will be between $3,000,000 and $4,000,000, according to Barton.

West Texas crude now being produced by Tide Water Associated interests is being moved to Bayonne, New Jersey, at considerable expense. Terminal and refining facilities on the Gulf Coast will considerably decrease the margin between the cost of this oil at the well at that at the present Atlantic seaboard refinery. The same will hold true with reference to that portion of the company's oil moved to Houston from the Mid-Continent.

Property on which the Tidal Refining Company's proposed refinery will be located is adjacent to the refinery site of the Shell Petroleum Corporation. While it fronts the Houston Ship Channel, it reaches back to the concrete highway running from this city to La Porte, on Galveston Bay, and is traversed by the Public Belt Railway right-of-way.

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tion in the Mid-Continent. At any rate, Oklahoma operators feel that the new areas being opened will have an unfavorable influence upon the future crude market. Indications are that much additional production can be expected from Kansas, where production has already increased to above 100,000 barrels daily and is approaching a possible new peak for that state. Despite the rather gloomy outlook in the Mid-Continent section, there seems to be most active solicitation for crude connections in both Kansas and Oklahoma. Sinclair Consolidated Oil Corporation is said to have practically completed a deal for purchase of the McMann Oil & Gas Company, for a consideration of $15,000,000. McMann has considerable producing property in West Texas, and if the deal is consummated, the Sinclair Company will undoubtedly lay a line to that area.

Group 3 gasoline market is firm at 7½ cents a gallon for U. S. Motor. With the steadying of the market, jobbers are beginning to watch their margins more closely. Considerable gasoline is being stored for future use. Excessive rains have reduced the demand for kerosene. It is moving slowly at 6⅜ to 6¾ cents a gallon.

Texas continued to maintain production at a steady level, showing only a slight increase of 1650 barrels. The fields which contributed to this gain were Panhandle, North Texas and West Texas. While Pecos and Howard Counties, West Texas, registered a total gain of 6950 barrels, Winkler County showed another decline of 4200 barrels, indicating that production is being steadily lowered to meet the limitation of 125,000 barrels.

California Umpire Issues Order For 129,530 Barrel Cut

LOS ANGELES.—General Order No. 1, calling for the reduction of production in all Los Angeles Basin and Pacific Coast fields to a level not greater than the average of 1928, has been issued by Umpire F. C. van Deinse. The order affects all districts except San Joaquin Valley and became effective at seven a. m., April 22. The order contemplated a reduction in production of 129,530 barrels, but it is not yet possible to ascertain exactly what percentage of the anticipated amount was shut in. It was explained in the order that a later order reducing the San Joaquin Valley fields by 15,626 barrels would be issued as soon as details could be worked out.

Each operator in the affected districts was given a copy of the order, which showed, in itemized form, the name of the field, percentage of alloted production as compared with the average of February, upon which the new figure was based, name of the company, lease, potential production, allotted production and total field production, both before curtailment and as it should be after curtailment.

The umpire asked strict compliance with the order and stressed that the curtailment could only benefit the industry in the state.

Potential production in some of the fields had changed considerably, when compared with the original plans formulated more than a month ago, but an equitable proration was made in each field. Seal Beach showed a much larger production at the time General Order No. 1 went into effect than when the first plan was drawn. Operators in the field, therefore, were requested to cut a much larger percentage than originally planned. Some of the settled fields had declined, and were asked to cut a smaller amount than the operators had expected.

Production in the Long Beach field showed a 10,000-barrel increase, but was asked to cut to 140,000 barrels, as originally planned. Santa Fe Springs showed a sharp decrease and needed to make a smaller sacrifice than expected a month ago to bring production to the allotted 125,000 barrels.

Tulsa.—Cromwell-Franklin Oil Company's Thompson 1, SEc Section 15-12n-3w, north of Oklahoma City, is moving in a three-inch drill pipe and will deepen from its present depth of 7180 feet. It is the deepest hole ever drilled in the state. The bottom of the hole is thought to be near the second Wilcox sand.

United States Daily Average Production

Figures below are taken from the complete revised estimates of the AMERICAN PETROLEUM INSTITUTE except for the current week, which are advance estimates issued by the A. P. I. and are subject to revision:

1928	Oklahoma	Kansas	Texas (Outside Gulf Coast)	Gulf Coast	North Louisiana	Arkansas	Eastern States	Rocky Mountain	California	United States Daily Ave.	United States Total
January	675,450	108,300	523,300	125,450	45,250	90,050	109,600	77,000	617,100	2,371,500	73,516,500
February	664,450	110,550	538,750	115,800	45,300	88,250	104,850	75,550	614,750	2,358,250	68,388,850
March	646,850	112,250	575,850	119,900	44,400	85,600	102,150	78,700	617,450	2,383,150	73,877,650
April	620,450	112,150	617,850	118,850	46,900	83,450	107,000	78,500	613,550	2,398,700	71,961,100
May	610,100	108,750	561,450	129,850	43,600	91,250	112,100	82,200	630,900	2,370,200	73,476,300
June	594,850	105,200	554,400	135,400	42,350	102,850	109,300	82,400	643,400	2,370,150	71,104,500
July	587,150	102,750	597,250	133,650	42,150	90,700	113,400	80,400	644,700	2,392,150	74,156,600
August	656,350	102,200	604,000	130,200	40,200	87,500	113,300	77,700	634,150	2,445,600	75,534,600
September	724,850	99,750	604,150	129,500	39,050	84,700	112,550	78,850	631,650	2,505,050	75,151,500
October	741,350	97,900	598,550	129,950	38,800	83,550	114,000	83,300	624,450	2,511,850	77,867,800
November	715,750	96,600	586,350	135,100	38,600	83,000	109,700	81,150	653,050	2,499,300	74,978,300
December	710,600	97,200	603,700	135,050	37,300	81,350	113,450	74,600	697,850	2,551,100	79,084,400
1929											
January	722,550	97,150	632,500	136,750	36,650	78,600	111,950	73,200	747,250	2,635,600	81,703,600
February	714,800	95,950	643,350	142,300	35,700	74,600	108,550	71,750	797,800	2,684,800	75,204,400
March	666,500	95,500	662,500	147,750	35,800	74,250	108,850	70,400	786,000	2,647,400	82,068,350
April 6	673,700	97,850	668,250	150,850	35,500	73,100	110,250	71,350	777,200	2,658,100	18,606,700
April 13	648,400	105,350	644,700	154,500	35,600	72,800	110,500	67,100	776,200	2,615,050	18,305,350
April 20	673,700	109,100	649,300	150,450	35,600	73,500	110,750	72,950	796,600	2,671,850	18,702,950
Increase	25,300	3,750	4,600	.....	.....	700	250	5,850	20,400	56,800	397,600
Decrease	.....	.....	.....	.....	4,050	.....	.....	.....	.....	.....	.....

TEXAS
(Outside Gulf Coast)
PANHANDLE DISTRICT

	April 20	April 13
Carson County	6,500	6,300
Gray County	28,700	28,150
Hutchinson County	26,300	24,950
Wheeler County	650	650
Others	1,900	1,650
Totals	64,050	61,700

NORTH TEXAS

Archer County	16,650	16,600
Burkburnett	9,050	8,950
Electra	12,800	12,650
Iowa Park-KMA	5,150	5,450
Montague and Cooke Cos.	12,550	12,000
Wilbarger	26,650	26,750
Others	500	500
Total	83,350	82,900

WEST CENTRAL TEXAS

Brown County	8,550	8,700
Callahan County	3,900	3,750
Coleman County	3,600	3,700
Eastland-Desdemona	6,800	7,050
Jack County	1,600	1,500
Palo Pinto County	400	400
Shackelford County	13,300	13,250
Stephens County	6,300	6,100
Throckmorton County	650	600
Young County	6,700	6,750
Others	700	700
Total	52,500	52,500

WEST TEXAS

Crane-Upton Counties	48,850	49,000
Crockett County	2,150	2,100
Howard County	45,650	42,700
Jones County	5,850	6,100
Mitchell-Scury Counties	2,600	2,800
Pecos County	92,200	88,200
Reagan County	19,150	18,500
Winkler County	139,000	143,200
Others	2,050	1,800
Total	357,500	354,400

EAST CENTRAL TEXAS

Boggy Creek	2,900	3,500
Corsicana-Powell	8,100	8,150
Currie	500	500
Mexia	5,400	5,450
Nigger Creek	600	600
Richland	400	400
Wortham	1,150	1,200
Total	19,050	19,800

SOUTHWEST TEXAS

Dale	550	550
Laredo District	11,550	11,750
Luling	12,300	12,450
Lytton Springs	1,000	1,000
Somerset	1,100	1,000
Salt Flat	41,400	41,800
Others	4,950	4,850
Total	72,850	73,400
T'tl Tex. (Outside Gulf Coast)	649,300	644,700

TEXAS GULF COAST

Barbers Hill	10,150	11,700
Batson	1,500	1,500
Big Creek	2,950	2,750
Blue Ridge	3,300	3,200
Boling	2,000	1,900
Damon Mound	700	800
Goose Creek	6,200	6,300
Hull	9,300	9,450
Humble	7,000	7,400
Orange County	2,800	2,900
Pierce Junction	15,850	15,700
Raccoon Bend	2,550	2,200
Saratoga	1,000	950
Sour Lake	2,700	2,650
South Liberty	5,550	5,700
Spindle Top	31,650	32,000
Sugar Land	11,600	12,100
West Columbia	6,000	6,250
Washington County	3,250	3,650
Others	5,100	5,000
Total	131,150	134,100
Texas Total	780,450	778,800

OKLAHOMA

Braman	3,400	3,250
Logan County	11,000	11,000
Blackwell	3,950	3,750
Hubbard	2,000	2,050
Thomas	850	900
Tonkawa	10,350	10,100
Garber	5,850	5,900
Burbank	21,200	21,300
Osage (outside Burbank)	25,050	25,100
Cushing	20,650	20,700
Yale Jennings	7,150	7,100
Davenport	1,500	1,500
Bristow Slick	19,650	19,550
North Okmulgee	13,750	14,150
Lyons Deaner	8,000	8,100
Cromwell	7,900	7,600
Papoose	3,350	3,400
Wewoka	4,850	4,900
Seminole	34,100	31,550
Bowlegs	34,950	33,000
Searight	9,500	9,350
Little River	73,800	70,450
Earlsboro	60,900	59,250
Duncan District	6,450	6,550
Graham	4,300	4,350
Fox	1,450	1,450
Healdton	13,100	13,000
Hewitt	8,150	8,150
Scholem-Alechem	13,000	13,000
Pearson	2,450	3,800
St. Louis	107,300	99,850
Allen	26,300	26,200
Maud	28,650	26,500
Mission	29,450	25,200
Okla. City	3,350	3,450
Others	45,950	42,850
Total	673,600	648,400

CALIFORNIA

Santa Fe Springs	160,000	147,000
Long Beach	189,500	185,000
Huntington Beach	46,500	46,500
Torance	14,500	14,500
Dominguez	10,500	10,500
Rosecrans	7,000	7,000
Inglewood	25,500	25,500
Midway-Sunset	72,500	72,500
Ventura Avenue	56,500	55,000
Seal Beach	48,500	48,500
Elwood-Goleta	31,500	28,000
Kettleman Hills	3,500	4,000
Others	130,600	132,200
Total	796,600	776,200

KANSAS

Greenwood County	20,300	20,000
Florence-Covert	1,000	950
Peabody-Ebling	2,750	2,850
Eldorado-Towanda	12,800	11,900
Augusta-Fox Bush	2,950	2,750
Rainbow Bend	1,000	1,000
Russell	3,250	3,200
Churchill	7,200	6,800
Oxford	5,250	4,950
Sedgewick	24,600	23,750
Others	28,000	27,200
Total	109,100	105,350

NORTH LOUISIANA

	April 20	April 13
Homer	4,050	3,950
Haynesville	5,350	5,400
Caddo Light	8,100	8,100
Caddo Heavy	3,150	3,250
DeSoto-Red River	3,950	3,950
Elm Grove	600	600
Bellevue	700	700
Cotton Valley	3,050	3,050
Urania	5,900	5,850
Pleasant Hill	500	500
Others	250	250
Totals North Louisiana	35,600	35,600

LOUISIANA GULF COAST

Bayou Boullion	280	300
East Hackberry	2,800	2,600
Hackberry	3,600	4,100
Edgerly	800	900
Evangeline	800	1,000
Lockport	3,400	3,400
Sorrento	350	400
Suiphur Dome	2,400	2,600
Sweet Lake	400	400
Vinton	4,000	4,200
Others	500	500
Total Louisiana Gulf Coast	19,300	20,400
Louisiana Total	54,900	56,000

ARKANSAS

El Dorado	4,800	4,550
Champagnolle	10,400	9,150
Smackover Light	6,200	6,200
Smackover Heavy	48,450	49,150
Stephens	1,000	1,000
Nevada	1,200	1,250
Lisbon	1,350	1,400
Others	100	100
Total	73,500	72,800

MOUNTAIN STATES
WYOMING

Salt Creek	35,350	30,100
Grass Creek	2,300	2,300
Elk Basin	850	1,000
Big Muddy	2,300	2,300
Lost Soldier	3,300	3,300
Rock River	2,550	2,450
Lance Creek	250	250
Oregon Basin	2,350	2,350
La Barge	1,750	1,750
Others	2,650	2,600
Total	53,650	48,400

MONTANA

Cat Creek	1,400	1,400
Sunburst	5,300	5,300
Pondera	2,750	2,850
Others	100	100
Total	9,550	9,650

COLORADO

Moffats (Craig)	1,000	1,000
Fort Collins	2,550	2,350
Florence	1,050	1,050
Others	1,800	2,100
Total	6,400	6,500

NEW MEXICO

Table Mesa	450	200
Artesia	900	900
Hogback	250	300
Rattlesnake	1,350	750
Others	400	400
Totals	3,350	2,550
Totals Mountain States	72,950	67,100

EASTERN STATES

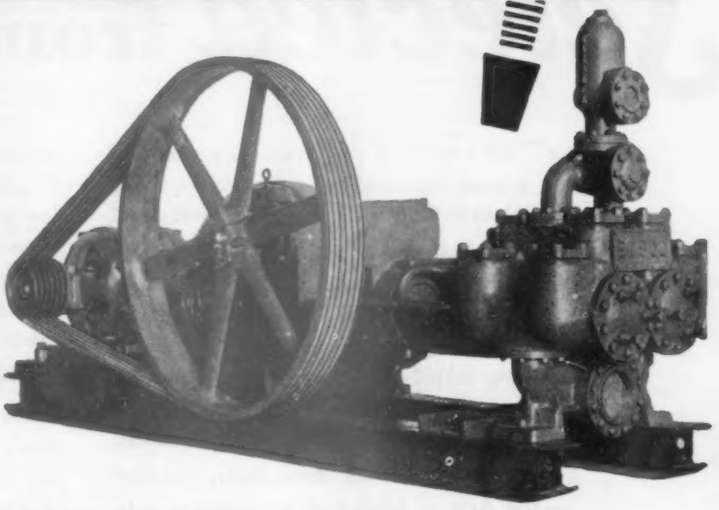
(Inculding Ill., Ind., Ohio, W. Va., Pa., Ky., and N. Y.)	110,750	110,500

PRODUCTION SUMMARY

East of Rockies	1,802,300	1,771,750
Total U. S.	2,671,850	2,615,050

FLEXIBLE yet POSITIVE

TEXROPE *Takes the* TROUBLES



ON

EMSCO GARDNER-DENVER POWER DRIVEN SLUSH PUMPS

Texrope Advantages

98.9% efficient, Positive and Slipless; Short centers; Trouble-proof: Not affected by dust, dirt and moisture; No oil required; No housing required; Smooth starting, acceleration and running; Silent; Does not transmit vibration; Continuity of operation. One or several belts may fail and the unit will operate until repairs can be made conveniently.

Slush Pump Features

Entire Power end fully enclosed and self-lubricated; Roller bearing jack shaft and main shaft, Extended frame prevents mud by-passing to power end; Steel connecting rods; Sizes 5¾ x 12; 6¾ x 12; 6¾ x 14; 7¼ x 14. All sizes are equipped with divided fluid end. 6¾ x 14 is designed for 1500 pound pressure.

All Emsco and D+B Products (Except Derricks) Sold Exclusively in Mid-Continent Fields by The Continental Supply Company

EMSCO STEEL EQUIPPED WELLS ARE SAFE

Say you saw it in The OIL WEEKLY

Your engine will perform better with the *Correct* gasoline *Selected* from these 3!

CERTAINLY you want to get out of your engine *all* the performance that's built into it. Only the *right* gasoline will do it!

To help you obtain the RIGHT gasoline for *your* car, Sinclair has produced the "Three-Gas" Service. *Three* gasolines of the finest quality. Each one is *all*-gasoline, nothing added—Yet each one is different, having certain qualities all its own and sold upon its merits—for superior performance.

"Aircraft" is a marvelous, flashy gasoline—the Ace of high-test gasolines—gets you away like a rocket and gives you the jump on traffic. Sinclair H-C Gasoline gives High-Compression performance, better low-gear performance and STOPS KNOCKS, even on the hills! And, at three cents less per gallon, if you prefer, you may have Sinclair Regular—full of eager power and made especially for the motorist who wants mileage and economy.

No longer do you have to buy the gasoline that's just right for somebody else's car—use the one that's best for yours! Drive in and select it wherever you see the Sinclair Sign.

1

The ACE of High-Test Gasolines . . . for Speedy Take-off . . . Flashy Acceleration . . . Brilliant Performance.

It meets the specifications of the Army, Navy, and Bureau of Mines for AVIATION GASOLINE—domestic grade.

2

Gives Higher Compression . . . Stops Knocks . . . Better Low-Gear Performance.

3

Economy and Mileage . . . Full of Eager Power

SINCLAIR "Three Gas" SERVICE

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A gas for every motoring need—let us help you get SUPERIOR ENGINE PERFORMANCE

SINCLAIR REFINING COMPANY, Inc., 45 NASSAU STREET, NEW YORK ATLANTA BOSTON CHICAGO HOUSTON KANSAS CITY

CRUDE OIL PRICE QUOTATIONS

Revised April 23, 1929

CRUDE PRICE CHANGES

Effective April 22, Louisiana Oil Refining Company posted an increase of 10 cents a barrel for Urania, Louisiana, crude. The new price is $1.00 a barrel.

EASTERN STATES

(Effective March 12, 1929)

Penna Grade Oil in New York Transit Lines (New York)	$4.10
Brandford District Oil in National Transit Lines (Pennsylvania)	4.10
Penna Grade Oil in National Transit Lines (Pennsylvania)	4.00
Penna Crude Oil in Southwest Pennsylvania Lines (West Virginia)	4.00
Penna Grade Oil in Eureka Pipe Line Lines (Pennsylvania)	3.90
Penna Grade Oil in Buckeye Pipe Line Lines (Ohio)	3.85
Cabell Grade Oil in Eureka Pipe Line Lines (West Virginia)	1.35
Corning 35-cent Grade Oil in Buckeye Pipe Line Co.'s lines	1.80
Corning 25-cent Grade Oil in Buckeye Pipe Line Co.'s lines	1.75
Somerset Oil in Cumberland Pipe Line lines (Kentucky)	1.50
Ragland Grade Oil in Cumberland Pipe Line lines (Kentucky) (Effective Jan. 29, 1929)	.60
Keister (Pennsylvania)	1.20

CENTRAL STATES

(Effective January 25, 1929)
Posted by Ohio Oil Co.

Illinois	1.45
Indiana	1.27
Lima	1.50
Plymouth	1.18
Princeton	1.45
Waterloo	1.25
Wooster	1.62

WESTERN KENTUCKY

All grades	1.53

MID-CONTINENT

(Effective January 24, 1929)
Magnolia Petroleum Company

Under 26	.60
26 to 26.9 gravity	.65
27 to 27.9 gravity	.70
28 to 28.9 gravity	.75
29 to 29.9 gravity	.80
30 to 30.9 gravity	.90
31 to 31.9 gravity	1.00
32 to 32.9 gravity	1.08

From 33 to 44 gravity and above, Magnolia Petroleum Company prices are the same as those of Carter Oil Company.

MID-CONTINENT

(Effective January 25, 1929)
Carter Oil Company, Gulf Pipe Line Company, Sinclair Pipe Line Company, Prairie Oil and Gas Company and The Texas Company.

25 to 25.9gravity	.66
26 to 26.9 gravity	.72
27 to 27.9 gravity	.78
28 to 28.9 gravity	.84
29 to 29.9 gravity	.90
30 to 30.9 gravity	.96
31 to 31.9 gravity	1.02
32 to 32.9 gravity	1.08
33 to 33.9 gravity	1.11
34 to 34.9 gravity	1.14
35 to 35.9 gravity	1.17
36 to 36.9 gravity	1.20
37 to 37.9 gravity	1.23
38 to 38.9 gravity	1.26
39 to 39.9 gravity	1.29
40 to 40.9 gravity	1.32
41 to 41.9 gravity	1.35
42 to 42.9 gravity	1.38
43 to 43.9 gravity	1.41
44 and above	1.44

PANHANDLE

(Effective January 24, 1929)

GRAY COUNTY

(Humble Oil & Refining Company, Magnolia Petroleum Company, Gulf Pipe Line Company and Sinclair Pipe Line Company).

Below 29 gravity	.69
29 to 29.9 gravity	.75
30 to 30.9 gravity	.81
31 to 31.9 gravity	.87
32 to 32.9 gravity	.93
33 to 33.9 gravity	.96
34 to 34.9 gravity	.99
35 to 35.9 gravity	1.02
36 to 36.9 gravity	1.05
37 to 37.9 gravity	1.08
38 to 38.9 gravity	1.11
39 to 39.9 gravity	1.14
40 to 40.9 gravity	1.17
41 to 41.9 gravity	1.20
42 to 42.9 gravity	1.23
43 to 43.9 gravity	1.26
44 and above	1.29

WHEELER COUNTY

(Humble Oil and Refining Company and Magnolia Petroleum Company)

Below 30 gravity	.70
30 to 30.9 gravity	.76
31 to 31.9 gravity	.82
32 to 32.9 gravity	.88
33 to 33.9 gravity	.91
34 to 34.9 gravity	.94
35 to 35.9 gravity	.97
36 to 36.9 gravity	1.00
37 to 37.9 gravity	1.03
38 to 38.9 gravity	1.06
39 to 39.9 gravity	1.09
40 to 40.9 gravity	1.12
41 to 41.9 gravity	1.15
42 to 42.9 gravity	1.18
43 to 43.9 gravity	1.21
44 and above	1.24

CARSON-HUTCHINSON COUNTIES

(Humble Oil and Refining Company, Magnolia Petroleum Company and Gulf Pipe Line Company)

Below 32 gravity	.72
32 to 32.9 gravity	.78
33 to 33.9 gravity	.81
34 to 34.9 gravity	.84
35 to 35.9 gravity	.87
36 to 36.9 gravity	.90
37 to 37.9 gravity	.93
38 to 38.9 gravity	.96
39 to 39.9 gravity	.99
40 to 40.9 gravity	1.02
41 to 41.9 gravity	1.05
42 to 42.9 gravity	1.08
43 to 43.9 gravity	1.11
44 and above	1.14

WEST TEXAS

(Humble, Gulf, Magnolia, The Marland Company and Southern Crude Oil Purchasing Company)*

Crane-Upton, Crockett, Pecos and Winkler Counties, all grades	.65

*Gulf does not post in Winkler County; Magnolia posts in Crane, Upton and Winkler Counties. Southern Crude Oil Purchasing Company posts only in Crane, Upton and Winkler Counties.

CALIFORNIA CRUDE OIL PRICES AT THE WELL

(EFFECTIVE JANUARY 18, 1929)

Following are the current prices offered by Standard Oil Company for crude oil at the well: (Price per barrel of 42 gallons infields indicated)

Gravity	Ventura *	Signal Hill	Alamitos Heights-Seal Beach	Huntington Beach	Inglewood	Olinda-Brea Canon	Athens-Rosecrans Dominguez	Elwood † Terrace	Torrance	Richfield	Whittier La Habra	Montebello	Coyote Hills	Santa Fe Springs	Newhall McKittrick Kern River	Midway-Sunset Elks Hills	Buena Vista Hills	Lost Hills	Coalinga	Wheeler Ridge
14-14.9	$ .85	$ .70	$ .70	$ .70	$ .70	$ .70	$ ..	$ ..	$ .70	$ .70	$ .70	$ .70	$ .70	..	$ .50	$ .50	$ .50	$ .50	$ .50	$ .50
15-15.9	.85	.70	.70	.70	.70	.70	..	..	.70	.70	.70	.70	.70	..	.50	.50	.50	.50	.50	.50
16-16.9	.85	.70	.70	.70	.70	.70	..	..	.70	.70	.70	.70	.70	..	.50	.50	.50	.50	.50	.50
17-17.9	.85	.70	.70	.70	.70	.70	..	..	.70	.70	.70	.70	.70	..	.50	.50	.50	.50	.50	.50
18-18.9	.85	.75	.75	.75	.75	.75	..	..	.75	.75	.75	.70	.75	..	.50	.56	.56	.56	.56	.56
19-19.9	.85	.80	.80	.80	.80	.80	..	..	.80	.80	.80	.75	.80	..	.50	.62	.62	.62	.62	.62
20-20.9	.85	.85	.85	.85	.85	.85	..	..	.85	.85	.84	.80	.84	..	..	.68	.68	.68	.68	.68
21-21.9	.86	.89	.89	.89	.89	.89	..	..	.89	.89	.88	.85	.88	.89	..	.74	.74	.74	.74	.74
22-22.9	.87	.93	.93	.93	.93	.93	..	..	.93	.93	.91	.90	.91	.92	..	.80	.80	.80	.80	.80
23-23.9	.90	.97	.97	.97	.97	.97	..	..	.97	.97	..	.95	.94	.95	..	.85	.85	.85	.85	.85
24-24.9	.94	1.01	1.01	1.01	1.01	1.01	1.01	..	1.01	1.01	..	.98	.97	.98	..	.90	.90	.90	.88	.88
25-25.9	.98	1.05	1.05	1.05	1.05	1.05	1.05	..	1.05	1.05	..	1.01	1.00	1.01	..	.95	.95	.95	.91	.91
26-26.9	1.02	1.09	1.09	1.09	1.09	1.09	1.09	..	1.09	1.09	..	1.04	1.04	1.04	..	1.00	1.00	1.00	.94	.94
27-27.9	1.06	1.13	1.13	1.13	1.13	1.13	1.13	..	1.13	1.13	..	1.07	1.08	1.07	..	1.05	1.05	1.05	.98	.97
28-28.9	1.10	1.17	1.17	1.17	1.17	1.17	1.17	..	1.17	1.17	..	1.10	1.12	1.10	..	1.10	1.10	1.10	1.02	..
29-29.9	1.14	1.21	1.21	1.21	..	1.21	1.21	..	..	1.21	..	1.13	1.16	1.15	..	1.16	1.16	1.16	1.06	..
30-30.9	1.18	1.25	1.25	1.25	..	1.25	1.25	..	..	1.25	..	1.16	1.20	1.20	..	1.22	1.22	1.22	1.10	..
31-31.9	1.23	1.30	1.30	1.30	..	..	1.30	..	..	..	..	..	..	1.25	..	1.28	1.28	1.28	1.14	..
32-32.0	1.28	1.35	1.35	1.35	..	..	1.35	..	..	..	..	..	..	1.30	..	1.34	1.34	1.34	1.18	..
32-32.9		..	..	..	..	..	1.41	..	..	..	..	..	..	1.35	..	1.40	1.40	1.40	1.22	..
34-34.9		..	..	..	..	..	1.47	1.16	..	..	..	..	..	1.40	..	..	..	1.46	1.26	..
35-35.9		..	..	..	..	..	1.53	1.22	..	..	..	..	..	1.45	..	..	..	..	1.30	..
36-36.9		..	..	..	..	..	1.59	1.28	..	..	..	..	..	1.50	..	..	..	..	..	..
37-37.9		..	..	..	..	..	1.65	1.34	..	..	..	..	..	1.55	..	..	..	..	..	..
38-38.9		..	..	..	..	..	1.71	1.40	..	..	..	..	..	1.60	..	..	..	..	..	..
39-39.9		..	..	..	..	..	1.77	1.46	..	..	..	..	..	1.65	..	..	..	..	..	..
40-40.9		..	..	..	..	..	1.83	1.52	..	..	..	..	..	..	..	..	..	..	..	..
41-41.9		..	..	..	..	..	1.89	1.58	..	..	..	..	..	..	..	..	..	..	..	..
42-42.9		..	..	..	..	..	1.95	1.64	..	..	..	..	..	..	..	..	..	..	..	..

KETTLEMAN HILLS—55 degree Gravity and above $1.65 per barrel. *Union Oil Company. †Changed March 18, 1929.

CRUDE OIL PRICE QUOTATIONS (*Continued from Page 47*)

(Magnolia Petroleum Company)
(Effective January 24, 1929)

Mitchell County	$ .65
Howard-Glasscock County (shallow)	.65
Howard-Glasscock County (deep)	.65

Col-Tex Refining Company

Howard and Mitchell Counties	$ .80

MARKHAM
The Texas Company
(Effective January 30, 1929)

All grades	.90

LULING

All grades	.80

NORTH AND CENTRAL TEXAS
Effective January 24, 1929)
Ranger, North Texas, Mexia, Powell, Richland, Wortham, Currie, Moran, Nocona and Lytton Springs Crude
(Humble Oil and Refining Company)

Below 25	.60
25 to 25.9 gravity	.66
26 to 26.9 gravity	.72
27 to 27.9 gravity	.78
28 to 28.9 gravity	.84
29 to 29.9 gravity	.90
30 to 30.9 gravity	.96
31 to 31.9 gravity	1.02
32 to 32.9 gravity	1.08
33 to 33.9 gravity	1.11
34 to 34.9 gravity	1.14
35 to 35.9 gravity	1.17
36 to 36.9 gravity	1.20
37 to 37.9 gravity	1.23
38 to 38.9 gravity	1.26
39 to 39.9 gravity	1.29
40 to 40.9 gravity	1.32
41 to 41.9 gravity	1.35
42 to 42.9 gravity	1.38
43 to 43.9 gravity	1.41
44 and above	1.44

SOUTH TEXAS

Mirando	.80
Salt Flat	1.00

GULF COAST
(Effective January 26, 1929)

Grade "A" all companies	1.20
Gulf Coast Light Oil, below 25	1.05
25 to 25.9 gravity	1.07
26 to 26.9 gravity	1.09
27 to 27.9 gravity	1.11
28 to 28.9 gravity	1.13
29 to 29.9 gravity	1.15
30 to 30.9 gravity	1.17
31 to 31.9 gravity	1.19
32 to 32.9 gravity	1.21
33 to 33.9 gravity	1.23
34 to 34.9 gravity	1.25
35 to 35.9 gravity	1.27
36 to 36.9 gravity	1.29
37 to 37.9 gravity	1.31
38 to 38.9 gravity	1.33
39 to 39.9 gravity	1.35
40 and above	1.37

*Humble Oil & Refining Company's postings on Gulf Coast Light stop at 35 to 35.9. Its price on all crudes above 35 to $1.37 per barrel.

Magnolia Petroleum Company's postings stop at 31 to 31.9.

SOMERSET
Grayburg

Below 33 gravity	1.05
33 to 33.9 gravity	1.07
34 to 34.9 gravity	1.09
35 to 35.9 gravity	1.11
36 to 36.9 gravity	1.13
37 to 37.9 gravity	1.15
38 and above	1.17

WYOMING-MONTANA
(Effective January 25, 1929)
Wyoming

Byron	1.33
Ferris	1.60
Elk Basin	1.36
Grass Creek	1.36
Rock Creek	1.18
Lost Soldier	.95
Lance Creek	1.38
Mule Creek	1.10
Notches	.65
Big Muddy	1.28
Osage	1.38
Hamilton Dome	.85
Pilot Butte	1.75
Torchlight-Greybull	1.48
Lander	.80
Rex Lake	1.10
South Casper Creek-Poison Spider	1.00

Salt Creek
Midwest Refining Company

29 to 29.9 gravity	.90
30 to 30.9 gravity	.96
31 to 31.9 gravity	1.02
32 to 32.9 gravity	1.08
33 to 33.9 gravity	1.11
34 to 34.9 gravity	1.14
35 to 35.9 gravity	1.17
36 to 36.9 gravity	1.20
37 and above	1.23

MONTANA

Sunburst	$1.65
Cat Creek	1.48
Lake Basin	2.20

NEW MEXICO

Artesia	1.08
Hogback	1.43

CANADA
(Effective January 26, 1929)

Oil Springs	1.97
Petrolia	1.90

LOUISIANA-ARKANSAS
(Effective January 26, 1929)
Homer, Haynesville, Caddo, El Dorado, De Soto and Crichton and Cotton Valley*
(Atlantic Oil Producing Company, Standard of Louisiana, Magnolia Petroleum Company and The Texas Company.)

27 to 27.9 gravity	.78
28 to 28.9 gravity	.84
29 to 29.9 gravity	.90
30 to 30.9 gravity	.96
31 to 31.9 gravity	1.02
32 to 32.9 gravity	1.08
33 to 33.9 gravity	1.11
34 to 34.9 gravity	1.14
35 to 35.9 gravity	1.17
36 to 36.9 gravity	1.20
37 to 37.9 gravity	1.23
38 to 38.9 gravity	1.26
39 to 39.9 gravity	1.29
40 to 40.9 gravity	1.32
41 to 41.9 gravity	1.35
42 to 42.9 gravity	1.38
43 to 43.9 gravity	1.41
44 gravity and above	1.44

*Shreveport-Eldorado's postings stop at above 40 gravity.

The posting on Cotton Valley is same as Caddo. From 36 to 52 and above the regular gravity schedule is followed.

The Texas Company pays North Texas gravity scale in North Louisiana.

STEPHENS
(All Companies)

Below 28 gravity	.70
28 to 28.9 gravity	.74
29 to 29.9 gravity	.78
30 to 30.9 gravity	.82
31 to 31.9 gravity	.86
32 gravity and above	.90

SMACKOVER
(All Companies)

Below 24 gravity	.75
24 and above	.90
Bellevue	1.25
Jennings	1.15
Vinton	1.30
Edgerly	1.30
Starks Dome	1.30
Urania	1.00
Calion	.75

IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS
American Petroleum Institute Figures (Barrels of 42 Gallons)

	Week Ended April 13	Week Ended April 6
AT ATLANTIC COAST PORTS—		
Baltimore	75,000	*294,000
Boston	.....	73,000
New York	885,000	827,000
Philadelphia	461,000	354,000
Others	380,000	84,000
Total	1,801,000	1,632,000
Daily Average	257,286	233,143
AT GULF COAST PORTS—		
Galveston District	.....	139,000
New Orleans and Baton Rouge	361,000	65,000
Port Arthur and Sabine District	.....	65,000
Tampa	45,000	.....
Total	406,000	269,000
Daily Average	58,000	38,428
AT ALL UNITED STATES PORTS—		
Total	2,207,000	1,901,000
Daily Average	315,286	271,571
Daily Average Four Weeks Ended	304,893	309,143

RECEIPTS OF CALIFORNIA OIL AT ATLANTIC AND GULF COAST PORTS
American Petroleum Institute Figures (Barrels of 42 Gallons)

	Week Ended April 13	Week Ended April 6
AT ATLANTIC COAST PORTS—		
Baltimore	75,000	132,000
Boston	.....	.....
New York	172,000	227,000
Philadelphia	.....	.....
Others	.....	166,000
Total	247,000	525,000
Daily Average	35,286	75,000
AT GULF COAST PORTS—		
Total	.....	.....
Daily Average	.....	.....
AT ATLANTIC AND GULF COAST PORTS—		
Total	247,000	525,000
Daily Average	35,286	75,000
Daily Average Four Weeks Ended	82,179	81,393
Distribution of Total California Oil Receipts is as folows:		
Crude	75,000	75,000
Gasoline	172,000	242,000
Gas Oil	.....	88,000
Fuel Oil	.....	50,000
Kerosene Dist.	.....	70,000
Total	247,000	525,000

*Revised.

Winkler Potential Estimates Above Actual

Downward revision of proration figures does not indicate depletion of oil horizon; operators conserving pressure

By H. H. KING
Special Representative

FORT WORTH.—Downward revision of official potential production estimates credited to the Winkler County area is not reflecting the actual depletion of oil horizons by drainage, and potential figures used for proration purposes have an undue influence on the general crude market situation. Winkler County's potential production estimates reached a peak of 2,798,134 barrels from 380 wells on October 15, 1928, and six months later the potential remained at a high level of 2,215,193 barrels, or within 582,941 barrels of the high mark. Owners of producing properties in the prorated area are unanimous in describing the lime pay as being somewhat of a skeleton of its former self as far as maintaining a high daily recovery, while major pipe line companies largely dependent upon this county for the bulk of their crude supplies are casting about for more virgin territory to offset the loss in runs that are inevitable.

Voluntary reduction of production allowance from 175,000 to 150,000 barrels daily made on April 1 by Winkler County operators has been greatly beneficial in prolonging the life of flowing wells. At the time that this cut in allowance went into effect a large number of the 40-acre units could not produce the oil quota earned under proration rules, while many operators did not elect to open up wells and sacrifice accumulated back pressure built up over a period of weeks to produce their respective quotas. Considering the potential production credited to the county, a high percentage of the 256 40-acre units credited with being proven, or furnishing production, are unable to produce their maximum oil allowance daily, with total production held to 125,000 barrels daily.

Winkler Activity Slack

Field work in Winkler County has been at a low level for the past month, and only 30 completions were recorded within the past eight weeks. The Southern Crude Oil Purchasing Company, which is developing properties in the Hendrick field jointly with the R. A. Westbrook Interests and Dixie Oil Company, is the only operator with any appreciable amount of undrilled acreage, but is holding its development program to four to six new tests monthly, excepting necessary offsets. Other companies are practically through with their drilling programs, or at least future work will be restricted to one or two tests at a time until the few remaining undrilled locations are taken care of.

The Southern Crude Oil Purchasing Company-Westbrook partnership stands at the head of the list on estimated potential production, having been credited with 453,906 barrels from 133 wells on 72¼ 40-acre units on April 15, as compared to a potential of 276,818 barrels from 58 wells on October 15, representing a gain of 177,088 barrels for the six months. During the last period in April this partnership earns a quota of 34,993 barrels on daily allowance, while the nearest approach to this allowance is Gulf Production Company's 17,000 barrels daily quota from a potential of 354,483 barrels credited to 37 wells. Gulf's potential is slightly above the October 15 level, and has benefitted immensely from having quarter section leases favorably located at various parts of the field in regard to the water situation. Heavy completions scored in recent weeks by Humble Oil & Refining Company in the south end of the field on its 320-acre T. G. Hendrick "C" lease No. 2 is reflected in the potential of 213,551 barrels on April 15 from 46 wells as compared to a potential of 116,166 barrels on October 15, or a gain of 97,385 barrels. Humble Oil & Refining Company's allowance during the current proration period is 13,686 barrels daily, and is assured of a gain on the next period by reason of having completed a well last week on the above mentioned lease with a potential rated at 39,000 barrels daily.

Prolific Lease Decreases

Located at what has heretofore been the most prolific section of the Winkler area, Atlantic Oil Producing Company and J. D. Collett-O'Keefe's T. G. Hendrick 160-acre "F" lease offers an unusual example of oil depletion. This lease was credited with a potential of 211,743 barrels from 12 wells on October 15, with a daily allowance of 7,400 barrels, but on April 15 had dropped to only 1,450 barrels daily potential from 13 wells for an allowance of 1,221 barrels daily. This four-unit property has taken a drop of 210,293 barrels on potential production within the six-month period. It is not quite producing the

(Continued on page 58)

A comparison of official proration figures for Winkler County when the peak on estimated potential production was reached October 15, 1928, and those on April 15, 1929, is made below by companies:

	October 15, 1928				April 15, 1929			
	40-ac Units	Prod. Wells	Potent'l Prod.	Daily Prod. Allowance	40-ac Units	Prod. Wells	Potent'l Prod.	Daily Prod.
Southern Crude & R. A. Westbrook Interests	32⅛	58	276,818	21,269	72¼	133	453,906	34,993
Southern Crude & Dixie Oil	14¼	27	34,562	7,073	17¼	38	27,386	5,822
Gulf Production Co.	12	27	346,672	14,464	17	37	354,483	17,000
Pure Oil Company	12	29	292,517	13,016	13	39	278,803	12,239
Shell Petroleum Corp.	15	34	297,310	14,436	18	40	125,850	9,427
Shell & The Texas Co.	16	38	338,124	15,960	16	44	149,706	9,528
Atlantic Oil Prod. Co.	12	26	154,361	9,312	13	33	123,170	7,320
Atlantic-J. D. Collett et al.	4	12	211,743	7,400	4	13	1,450	1,221
Atlantic-Kessler Pet. Corp.	1	1	7,992	646	1	2	11,937	593
Skelly Oil Company	4	12	301,823	9,814	8	16	158,327	7,713
Republic Production Co.	5 1/3	11	75,622	4,328	5 1/3	17	61,840	3,096
Magnolia Petroleum Co.	2	8	1,918	913	3	9	4,060	986
The California Co.	2	6	20,673	1,417	2	8	13,731	1,051
Murchison & Cranfill Bros.	2¼	7	14,935	1,373	2⅛	7	10,847	693
Murchison-T. P. Lee et al.	½	1	10,928	509	½	2	2,194	154
Independent Oil & Gas Co.	8½	17	62,368	5,336	8½	19	25,576	3,358
Marland Production Co.	2½	5	34,943	2,014	4	10	15,200	1,687
Prairie O. & G. Co.	2	5	90,660	3,292	6	13	123,482	5,945
Humble Oil & Refining Co.	14	32	116,166	9,149	22	46	213,551	13,686
Texon Oil & Land Co.	4	11	18,827	2,230	4	12	25,589	1,914
Cranfill & Reynolds, Inc.	2½	8	77,599	3,161	2	7	8,035	802
Amerada Petroleum Corp.	1	1	3,293	519	4	5	9,156	1,483
Winkler Oil Prod. Corp.	¼	1	700	127	¼	1	98	76
Richardson-Kelsey et al	1	1	....	431	1	1	196	300
Eastland Oil Company	¾	1	257	330	2	3	1,936	652
Bankers Producing Corp.	⅛	1	4,683	180	⅛	1	507	54
Mining & Engineering Corp.	¼	1	2,640	179	¼	1	54	75
Empire Gas & Fuel Co.	..	..	....	....	2	3	4,101	725
American-Maracaibo Co.	..	..	....	....	¾	2	2,471	303
May Oil Corp.	..	..	....	....	⅛	1	15	37
Simms Oil Co. & Southwest	..	..	....	....	1/3	1	....	98
Culberson Bros. et al.	..	..	....	....	¼	1	654	95
L. H. Wentz et al.	..	..	....	....	1	1	291	303
Warner-Quinlan Co.	..	..	....	....	1	1	3,421	409
Pickrell & Cranfill Bros.	..	..	....	....	1	1	90	293
Totals	174	380	2,798,134	150,027	256	568	2,215,193	144,131

PERSONAL MENTION-MEN YOU KNOW

Hall Edwards, who for the past three years has been connected with Sunray Oil Company as head scout and in the land department, has been placed in charge of the Sun Royalty Company, royalty division of the former. This company was organized as an employee royalty company. Its offices will be in the Exchange Bank Building, Tulsa.

E. A. Cook, purchasing agent for the Twin State Oil Company, Tulsa, was operated on April 17 at St. Johns hospital for appendicitis. He is reported to be resting easily.

Joe McEvoy of the J. H. McEvoy & Company is spending several weeks in Houston prior to departing for the West Coast. He came to Houston from New York City after a business trip in the east.

R. A. Broomfield, president of the Barnsdall Oil Company of California, is attending to company business in New York City.

W. R. Hamilton, independent operator of Oklahoma, with headquarters at Tulsa, is spending several days in California, visiting with his old friend F. C. Merritt of the Elliott Core Drilling Company in Los Angeles. The two old friends attended the Standford reunion at Standford University, April 20.

Roy Renouf, president of the Pacific Oil Tool Company, with headquarters in Los Angeles, left April 13 for a two-weeks trip stopping at several Mountain States points, various Mid-Continent cities and a short visit in New York City, planning on returning to headquarters May 1.

Geo. A. Sharples, a former newspaper man, connected for three years with the advertising department of the Curtis Publishing Company, and more recently engaged in the advertising business, has accepted the position of advertising manager for Baker Oil Tools, Inc., in addition to handling publicity for the company. Mr. Sharples is also a commercial artist.

Claude Woessner, formerly with Venezuela Gulf Company at Maracaibo, and since August, 1928, in New York as assistant to W. A. Wallace, vice president in charge of Venezuelan Gulf operations, is making a tour of Gulf Coast fields.

C. A. Gibson, for the past seven years district superintendent of the gas transportation department with headquarters at Bartlesville, Oklahoma, has been transferred to Ottawa, Kansas. The change places Gibson in close contact with the divisions under his supervision.

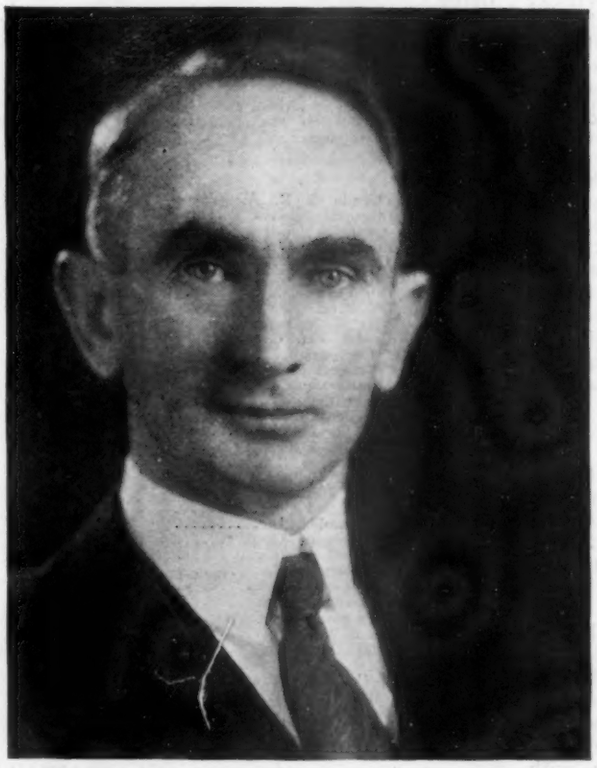
W. L. Greiner, formerly general auditor of the Midwest Refining Company has been elected treasurer of the company to succeed T. A. Pedley, resigned, and C. J. Barkdull, a director of the Standard Oil Company of Indiana, has been made a director of the Midwest. A meeting of the board of the Midwest Refinig Company was held in Denver this month.

Herald Has Had Colorful and Varied Career

Frank A. Herald recently was elected president of the Tulsa Geological Society. Herald has an international reputation as a geologist and petroleum engineer. He has served in foreign countries and many parts of the United States.

During the field seasons of 1908 and 1909, he was with the Oklahoma Geological Survey and U. S. Geological Survey, in Oklahoma, Colorado and New Mexico. He received an A. B. Degree in January, 1910, at Oklahoma University, where he specialized in geology then did graduate geology work at Johns Hopkins until June, 1910. From this time until June, 1914, he was employed as geologist for the U. S. Geological Survey, with the exception of two school years, 1912-1914, when he studied graduate work in petroleum geology at the University of Chicago, where he received a degree of M.S. Herald was geologist for the Standard Oil Company of New York in China from June, 1914, until March, 1916.

In March, 1916, he returned to this country and did consulting work in Oklahoma, Kansas and Texas, until July, 1916, when he was employed as geologist for the Cosden Oil & Gas Company in Oklahoma. He remained at this position until February, 1917, when he became general manager for Carl K. Dresser, oil producer, and was located in Kentucky.



FRANK A. HERALD

In December, 1918, until June, 1919, Herald was valuation engineer for the U. S. Bureau of Internal Revenue, and was in Ohio, Indiana, Illinois, and Washington, D. C. From June, 1919, until December, that year, he was in Washington, D. C., as chief of the oil and gas section of the U. S. Bureau of Internal Revenue. Herald joined the Atlantic Gulf Oil Corporation in December, 1919, as valuation engineer, and was located in France, Poland, Roumania and New York. Herald was transferred in November, 1920, to Cia. Petrolera Del Agwi, S. A. (subsidiary of Atlantic Gulf Oil Corporation) as chief geologist and was located at Tampico, Mexico, except for six months in New York. He remained with this company until August, 1923, serving at various times as chief geologist, head of land department, and later assistant general manager. Herald came to Tulsa in August, 1923, as a member of Herald Brothers, consulting geologists and petroleum engineers. He became president of the Phoenix Oil & Transport Company in September, 1927. A year later he again turned to consulting and engineering work in Tulsa, where he is located.

News From California Fields

BRAD MILLS, *Staff Representative, Los Angeles, California*

Better Showing of O'Connell Raises Santa Fe Springs Output

LOS ANGELES.—With Completion of five wells having a total initial of more than 25,000 barrels, the O'Connell zone jumped to the front during the past week and demonstrated conclusively that it is entitled to a Class A rating among the many zones developed in Santa Fe Springs field. Following a lull of several weeks, completion of so many large wells in rapid succession came as a surprise and practically eliminated skeptical views held concerning the value of the O'Connell sand. All of the wells had a good penetration, some even including the top of the Upper Clarke, but the fact that no failures were recorded in so many attempts lifts the zone far above the mediocre class and paves the way for a steady development of the sand as the Buckbee zone wells decline or stop flowing.

That four of the five wells completed in the O'Connell zone showed a rather high water cut is viewed with suspicion, but the inclusion of a part of the Upper Clarke sand in two wells accounts for the presence of water in these producers. A small break exists between the two formations, although it is not thick enough to prevent testing the two zones with one string of casing.

Completion a week ago of a 2100-barrel well in the extreme eastern part of the field, at a point recognized as a gamble, in the Upper Clarke zone is regarded as a real sensation. It opens up a large area which may produce satisfactorily below the Buckbee. The well was Rohde and McAdams' No. 2 and was completed at 7407 feet. A string of 5¾-inch casing was cemented at 7323 feet, giving the well about 84 feet of sand and shale.

New Area Opened

It is the first well to obtain a water shutoff below 7000 feet. Singularly enough, no special precaution was taken to insure a cementing job. The first cores showed oil sand. A satisfactory shale body had been cut, and the casing was run. The cement was untreated and the same as had been used in shallower wells in the upper zones. The shutoff was almost perfect, the oil showing a cut of only one-tenth of one per cent.

The Rhode and McAdams well started several other wells drilling, some of which had been idle for some time. The new producer opened up a tremendous gap which had been a failure in both the Buckbee and Nordstrum zones. It is near the extreme producing limits of the Meyer zone and is as large as most producers completed in 1923 in this shallower sand. Between the new well and the former line of production, several dozen wells may be completed.

It has developed that the Standard Oil Company barely missed discovering the Upper Clarke zone several years ago in this immediate sector, the company having abandoned its Brownrigg-Keller 1 only a few blocks south at 7225 feet, or only a little above the level at which Rohde and McAdams found the oil sand.

Operators in different parts of the field are groping around, trying to get a water shutoff over the Upper Clarke. Several of the unsuccessful wells have been shut down, pending more favorable developments in offsets.

Associated Oil Company is testing Clarke 2 again in the Lower Clarke zone. This well is the deepest in the field and opened up both the Upper and Lower Clarke zones. It was cemented once in the ordinary manner and again with chilled water. About 120 feet of formation is being tested between 7802 feet and 7823 feet. The small amount of oil recovered from cores showed a higher gravity than that in the upper sands, but a representative test was not made.

Find Lower Clarke

Three more wells have found the Lower Clarke zone in widely separated districts. They are Associated Oil Company's Dallugge 7, now standing cemented over the sand at 7850 feet, General Petroleum Corporation's No. 228 and and Oscar Howard's Hathaway 6. The zone has been fairly uniform in all of these wells and checks closely with the discovery well on the northwest side.

Associated Oil Company got the best well of the week in Green 3, an O'Connell zone producer which came in with an initial production of 7500 barrels. The well was drilled to 6915 feet and both the O'Connell and Upper Clarke zones were included in the test. The oil was 30 gravity and showed a cut of 17 per cent. The well showed unusual life, increasing production steadily for two days after completion.

The Texas Company's Baldwin 4, completed to include the O'Connell zone and a part of the Upper Clarke sand, responded with a flow of 5600 barrels, but production would have been much higher had the well flowed at a maximum rate. The oil was 33.7 gravity and showed a cut of only two-tenths of one per cent. The company also completed Matern 2-8 in the O'Connell zone at 6470 feet, the initial production having been 2400 barrels. The oil was 32 gravity and showed a cut of nine per cent.

Universal Consolidated Oil Company, already a large producer in both the Buckbee and O'Connell zones, maintained its fast pace by completing Blanchard 10 in the O'Connell zone with an initial production of 5600 barrels from 6690 feet. The oil was 32 gravity and cut about 10 per cent.

Union Oil Company was initiated into O'Connell zone production with completion of Howard 10, which was a 5000-barrel producer at 6565 feet. The cementing job was satisfactory, the oil showing a cut of about three per cent. This well is located on a very desirable lease and indicates that the O'Connell zone will be a consistent producer.

Older Sand's Productive

In addition to completions in the O'Connell zone, the Buckbee and Nordstrum sands accounted for a good production. By plugging back to different levels in the Nordstrum zone in three wells, General Petroleum Corporation placed these wells back on production as re-completions. They were Santa Fe Community 179-D, 179-E and 186-E, and were plugged back to 5054 feet, 5050 feet and 5000 feet, respectively. The new initial production, in the order named, was 960 barrels, 935 barrels and 400 barrels. Each well was plugged back at least 300 feet.

The best Buckbee zone producers included Union Oil Company's Farwell 11, a 2500-barrel well at 5865 feet, and General Petroleum Corporation's Anderson 153-D, which came in with a yield of 1400 barrels from 5909 feet.

The flock of new wells ran produc-

tion up sharply, the field total jumping to 162,000 barrels, for a gain of almost 17,000 barrels. The average for the week varied from this figure, however. Many new wells were completed near the end of the week, actual field gauges showing even a higher total.

Shallow Wells Increase

The old shallow wells showed a sharp increase during the past week, due to putting on production many Meyer zone wells which had been shut down several months ago to prevent mudding up from adjacent drilling wells. The operators are anxious to make the best possible showing when the curtailment program becomes effective and placed these old wells on production to aid their cause. It was considered safe to place these old Meyer zone wells back on production at this stage of the game, anyway, even though the impending production cut did bring the matter to a head. Many of the wells which were shut down produced as much as 300 barrels when shut in a few months ago. They responded with a similar production when placed on the pump during the past week. Shallow production jumped to around 26,000 barrels.

The field decline has slowed down rapidly, showing less than 9000 barrels during the past week, or about 70 barrels per well per week. This settling of the older producers was partly responsible for the easy climb the field had in connection with the large producers completed.

Long Beach Yield Up to 195,000 Barrels

Long Beach, Calif.—Long Beach continues to show a steady gain and is now within a few thousand barrels of the peak established 10 months ago. Eight completions during the week sent production soaring to 195,000 barrels, a net gain of 7000 barrels. Total initial production was 10,000 barrels, or a well average of 1250 barrels.

Richfield Oil Company revived the days of big producers, completing Bernstein with an initial production of 3500 barrels of clean oil. The well was drilled to 7350 feet.

Union Oil Company also continued its record of completions, placing Malin 1 on production with a flow of 2000 barrels from 7012 feet. The oil was 29 gravity and showed a cut of five per cent.

Woolner Oil Company again broke into the producing column with the completion of Osborne 3, which came in with an initial production of 2000 barrels. The well was drilled to 7263 feet and is flowing 29 gravity, clean oil.

Bush-Voorhes Oil Company obtained a production of 1600 barrels in the completion of Barnes 2, but the oil showed a cut of 35 per cent. The well was drilled to 7152 feet.

Shell Oil Company completed Nicholson 7 as a small producer at 7894 feet, making it one of the deepest wells ever completed in California. The oil showed a small cut, but the flow was so small that the well is regarded as barely a commercial producer.

Three Seal Beach Wells Boost Production

Los Angeles.—Three good wells in the Seal Beach field during the past week sent production soaring to new heights and brought the yield from the main field to above 40,000 barrels for the first time. The regularity with which the three operators have been completing large wells places the field in the semi-critical class and indicates that a much larger production can be developed.

Associated Oil Company again got the best well of the week in the completion of Bryant 12, which came in with an initial flow of 1600 barrels of clean oil from 5650 feet. The level at which this well was completed corresponds to the Wasem sand in the Alamitos sector.

Standard Oil Company continued its unbroken record with the completion of San Gabriel 5 at 4955 feet. The well had an initial production of 1600 barrels, the oil showing a cut of five per cent.

Marland Oil Company succeeded in completing Bixby 17 as a 1500-barrel producer 5710 feet. The oil was 25.3 gravity and showed a cut of nine per cent.

Three Tests Drilling at Summerland

Summerland, Calif.—The discovery of two fields along the coast and the promise of another has turned the eyes of several major companies toward an area of several miles in and near this place. Several weeks ago, George F. Getty leased a large part of the town, the announcement of the deal having suddenly created an interest in a field which has produced oil from shallow depth for 40 years. Three tests are already under way and another is expected to start within a week.

Seven-Mile Structure for Kettleman Hills

Coalinga, Calif.—General Petroleum Corporation has killed Oschner 2, recently tested at 6850 feet and found capable of producing 650 barrels of 60 gravity oil and 20 million cubic feet, and will deepen the well as soon as it is cleaned out to bottom. Oschner 2 added another important link in the development of the Kettleman Hills field and practically proved that it will be productive over a stretch of at least seven miles. The oil showed a cut of two per cent. but the condition of the hole easily could have accounted for this small amount of water.

After producing clean oil for several months, Milham Exploration Company's Elliott has started making some water. Production has increased considerably during the past month, however, offsetting the higher water cut. The well has produced more than $1,000,000 worth of oil in six months, besides more than 10 billion cubic feet of wet gas and goes down as most remarkable well ever completed in California.

Milham Exploration Company has assumed the lead in the field, with the three deepest wells, all of which are well below 5000 feet. Kennedy 1 is drilling at 5375 feet, Beal 1 at 5320 feet and Elliott 2, a direct offset to the discovery well, at 5200 feet.

Standard Oil Company, owner in fee of 34,000 acres in the field, has increased its drilling wells to eight, one of which is drilling at 5175 feet, three between 4000 and 5000 feet, two between 3000 and 4000 feet and two between 2000 and 3000 feet. The company has also made four more locations.

The total number of drilling wells now stands at 28, with two active locations. Few additional wells will be started, pending the outcome of the curtailment program outlined by the Department of the Interior.

Casing Being Run On Lawndale Test

Los Angeles.—Sovereign Oil Company sprang a surprise by its decision to run a string of casing to a point below 7000 feet in its Lawndale 1, in Lawndale field, leading to the belief that an extremely deep streak of sand had been found. The company refused to make public the reason for the string of casing. The high cost of a 7000-foot string of casing is sufficient to indicate that a good body of oil sand has been found.

Petroleum Securities Company has tested Brown 2 at 6195 feet, but the well flowed only when swabbed. The oil showed only a small cut and the well probably would make a commercial producer if placed on the pump.

Sixteen wells have been drilled past 6000 feet, but only one—Pacific Western Oil Company's Howland 2—has made a producer. This one exception is only a stone's throw from one of the two producing wells and proves only a very few acres. It is estimated that upward of $10,000,000 has been spent in the search for the trend of production at Lawndale, but only one small well has been completed.

Three Killed When Oil Catches Fire

Ventura, Calif.—Three men were killed and three other persons were seriously injured in the Rincon field when the Chanslor-Canfield Midway Oil Company's Hobson B-4 burst into flames while being completed. A spark from the boilers probably ignited the gas. The dead are Linnie Jones of Ventura, E. R. Masonheimer of Carpenteria and Edgar A. Rogers of Ventura. Masonheimer was working above the derrick floor and fell into the flames.

Buttonwillow Abandoned

Bakersfield, Calif. — Doheny-Stone Drilling Corporation has abandoned Salisbury 1, a wildcat test in the Buttonwillow district, at 4750 feet. The well showed some gas at different levels but was not regarded favorably as a possible deep producer.

Ventura Test Fails to Produce Oil

Ventura, Calif.—The M. K. and T. Oil Company has tested Foster 2 in the southern extension of the Ventura field, but failed to obtain production from a depth of 6370 feet. The well was drilled more than 500 feet deeper than the discovery well, which came in with an initial production of 1200 barrels, but failed to show life enough to flow when swabbed. It will be deepened. The company's Percy 1, which was given a production test at 6840 feet, made a disappointing showing and will also be deepened.

Pacific Western Oil Company completed Orton 9 as one of the best wells of the year, the initial production having been 1800 barrels of clean oil from 7020 feet. The new producer showed more than usual life and cleaned up rapidly.

Associated Oil Company successfully placed Lloyd 46 on production with an initial flow of 1600 barrels, but the oil showed a cut of 20 per cent. Gas production was nearly four million cubic feet.

Carpenteria Test

Carpenteria, Calif. — Continental Oil Company has temporarily abandoned the idea of making an oil well of Franklin 1, which was recently responsible for turning the spotlight on this small place, and will utilize the wildcat as a gas well if possible. Franklin 1 for a time promised to open a new oil field, but failed on a series of production tests between 3990 feet and 4100 feet, the present depth. The company has started a second well north of Franklin 1 and has made still another location only a few hundred feet from the original test.

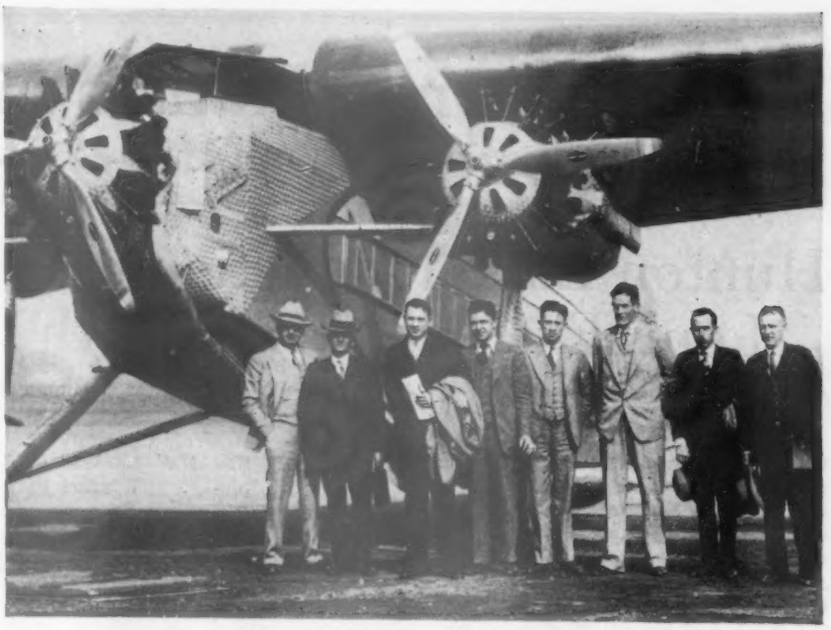
Elwood Outpost Dry

Santa Barbara, Calif.—Earl Petroleum Company has abandoned its outpost well, near the Elwood field, at 5285 feet, having cut only faint streaks of oil sand. The abandonment of this well leaves only one active outpost well drilling near the Elwood field.

Barnsdall Oil Company and Rio Grande Oil Company found the oil sand much deeper in Doty 4 than in the first wells drilled in the Elwood field. The top of the formation was tapped at 3590 feet, as compared with about 3150 feet in the shallower and more centrally located completions. The oil sand continued unbroken, however, at 3760 feet and the well promises to make an average producer.

Bastanchury Ranch

Los Angeles.—Shell Oil Company apparently is satisfied with the oil sand found in Stern 1, near Fullerton, a semi-wildcat test and has located another well on the Bastanchury ranch. A 4¾-inch oil string is being run to 6900 feet in Stern 1, preparatory to testing several hundred feet of oil sand and shale. Shallow oil has been produced in this area for years but no deep production has been developed.



Guests of Richfield Oil Company on flight. Left to right: H. W. Berdie, W. E. Green, Brad Mills, Louis Spath, L. E. Porter, Jack Westsmith, Russell Palmer and Paul Wagner

Richfield Takes Writers For Plane Ride

Los Angeles.—Richfield Oil Company was host April 17 to a group of oil magazine and financial writers of a 400-mile air trip to San Joaquin Valley oil fields, including the famous Kettleman Hills area, near Coalinga. The company's new tri-motored Fokker plane was used and the party was in charge of H. W. Berdie, manager of public relations, and L. E. Foster, chief geologist for the company.

Leaving Vail field, Los Angeles, at noon, the plane followed the Ridge Route, arriving over Wheeler Ridge, the first oil field after leaving the Los Angeles Basin, in about 45 minutes.

Flying along the extreme western edge of the San Joaquin Valley, the party kept the Maricopa Flats, Sunset, Midway, Belridge, McKittrick, Elk Hills and Lost Hills fields directly on the right. The thousands of derricks presented a sight entirely new to most of the members. Taft, distance of 110 miles by air, was reached in slightly more than one hour.

The center of the Kettleman Hills structure was reached in one hour and 40 minutes. The plane flew at a low altitude over a part of the distance, giving a striking view of California's new wonder oil field.

Coalinga field was the turning point in the trip, the once famous old field presenting a dull picture when compared with some of the Los Angeles Basin fields.

The return trip was made along the same general course as the flight northward, except that the long strip of fields was kept again on the right. The homeward march gave a better view, however, of the Elk Hills Naval Reserve and the Buena Vista districts.

Fog along the coast prevented a return trip along the Elwood, Rincon and Ventura fields, as originally planned. The round trip was made in exactly three and one-half hours.

Lunch was served on the plane immediately after leaving Los Angeles.

Richfield Oil Company's new plane is one of the finest ever built and easily maintains a cruising speed of 110 miles per hour. It is equipped with electric grill, ice box, lavatory and reclining chairs, in addition to almost every known safety feature. The plane is equipped with three 425-horsepower Wasp motors, any one of which will carry the ship until a landing place is found.

The members of the party included H. W. Berdie, Louis Spath, New York News Bureau; L. E. Porter, chief geologist, Richfield Oil Company, Jack Westsmith and Paul Wagner, National Petroleum News, Russell Palmer, Petroleum World-Oil Age, and W. E. Green and Brad Mills, Gulf Publishing Company.

Sunset Active

Taft, Calif.—The southern end of Sunset district has been transformed into an unusually active area, following completion two weeks ago of an 1800-barrel well on Section 8-11-23 by Signal Oil and Gas Company. New locations have been made nearby by North American Oil Consolidated, Rio Grande Oil Company, California-Western Oil Company, Signal Oil and Gas Company, Kern-Sunset Oil Company, Fred E. Turner and the Union Oil Company. The completion of such a large well in semi-wildcat territory was one of the important developments of the year.

Oklahoma--Kansas Field Notes

WARREN BAKER, *Staff Representative, Tulsa, Oklahoma*

Hunton Lime Production of St. Louis Extended Mile North

TULSA.—Foremost among the completions in Oklahoma during the past week was the McGraw Oil Company-Sinclair Oil & Gas Company-Martin and Irwin et al's Kelly 1, SEc NE NE Section 2-7-4, more than a mile north of Hunton lime production in St. Louis field. This well yielded 730 barrels the first 15 hours, and produced as high as 100 barrels per hour. The top of the Misener sand was at 3747 feet, with the top of the Hunton lime at 3750 feet. The top of the oil sand was 3773 feet and penetrated only two feet. Five million feet of gas is accompanying the oil flow. The well will be deepened further into the pay. The oil tests 38.8 gravity at a temperature of 60 degrees.

A large number of leases north of St. Louis are proven by this completion, which has been closely watched during the past 10 days.

The Hunton producing area at St. Louis now takes on the appearance of covering a huge territory. The promising area is now to the northwest, where several additional completions further improve the appearance of the region. Increased development will probably be seen at once in the district.

Wildcats' Yield Increased

The new Asher wildcat producer drilled in last week by Simms Oil Company put on a bigger hat during the past week. The hole was deepened one foot and the output materially increased. Total depth of the hole is 3699 feet. Deepening the hole increased production to 110 barrels per hour and the well made a new peak recovery of 2700 barrels the first 24 hours. This was an increase of better than 20 barrels per hour. The Asher wildcat is situated seven miles southwest of the St. Louis pool, on the Laster farm, in the SEc NE NE Section 19-6-4. Much trading in royalty and leases is being done in the neighborhood with the Slick Oil Company leading in the purchase of leases.

McGraw et al's producer, coupled with the Simms Oil Company's well and other recent development along the west side of the St. Louis field, promises that the district will probably in a very short time be the leading one in activity in the state. St. Louis is already the largest individual producing pool in the state, furnishing better than one-fourth of the Greater Seminole recovery.

Magnolia Petroleum Company's Latimer 1, SEc SW NW Section 17-7-4, west of St. Louis, which came in for 2000 barrels daily from the Simpson sand a short time ago, is experiencing considerable trouble. In the meantime a number of tests are starting to this productive horizon in the vicinity. The well was placed on air-lift, which helped it for a time, and later it was decided to swab it. The well went dead and made around 700 barrels on the swab cutting as high as four per cent. after the tubing had ben lifted. This was the first appearance of water, apparently indicating that it is coming from the sand.

Oklahoma City At Important Stage

Oklahoma City field is reaching a very important stage of development. During the next 30 days a completion should be made in the deep producing horizon of the discovery well. The coming week should see a couple of more wells penetrate the Layton and Tonkawa horizons.

During the past week, Wirt Franklin drilled in his Lowry 1, CWL NE Section 12-11-3w, after setting casing and cementing. After bailing the hole down to within 500 feet of the bottom, the gas blew the mud out, and is now estimated as producing from 40 to 55 million cubic feet of gas. The well had the Tonkawa sand from 3997-4013 feet. This well is nearly three miles north of the discovery well. It will be completed at the above depth, with the gas being used to run other operations of company.

The discovery well, Indian Territory Illuminating Oil-Foster Petroleum Companies' Fee 1, C SE SE Section 24-11-3w, declined in production to 3350 barrels and is making 285 barrels of water.

Weather Makes Progress Slow On Texas-Empire Line

TULSA.—Construction work on the Texas-Empire Pipe Line Company's 12-inch oil pipe line from Oklahoma to the Chicago industrial district is progressing slowly on account of the rainy and wet weather which prevails throughout the entire territory traversed by the 624 miles of main line and the 200 miles of branch lines.

Main line construction is electrically welded A. O. Smith bell and spiget 12-inch pipe from Cushing, Oklahoma, to Wilmington, Illinois, excepting the river crossing pipe which is of bell and spigot seamless type. From Wilmington to East Chicago, Indiana, where the Empire Refining Company is building its new refinery, the line will be 10-inch diameter. From Wilmington to Lockport, Illinois, where the Texas Pipe Line Company's refinery is located the line will be eight-inch diameter. Another branch line, 130 miles in length, of seamless construction and victaulic couplings, eight-inches in diameter will be constructed from the main line at Heyworth, Illinois, to Lawrenceville, Indiana, serving the Indian Refining Company. The line will be equipped with nine pump stations, eight of the oil engine type and one electrically driven unit with 40,000 barrels daily capacity.

There are 12 main-line gangs and two river-crossing gangs at work. Chas. F. Rayle of Wichita has contracted for the Oklahoma section from Cushing to Chetopa, Kansas; Kelley-Dempsey of Tulsa, the contract for the Kansas-Western Missouri section from Chetopa to Eldorado Springs, Missouri; and Williams Brothers of Tulsa, the contract for sections from Eldorado Springs to Wilmington, Illinois; Henry L. Lemons of Pampa, Texas, has the contract for the section from Heyworth to Lawrenceville. Contracts for the lines from Wilmington to Lockport and East Chicago have not been let.

There are four major river crossings: the Arkansas, near Tulsa; the Missouri, between Sedalia and Jefferson City, Missouri; the Mississippi, near Hannibal, Missouri, and the Illinois. The latter has been completed.

Robert Strong, formerly of the engineering department of the Empire Companies at Bartlesville, is in charge of construction under general direction of F. A. Stivers of Tulsa, general superintendent of the Texas-Empire Pipe Line Company. The line is expected to be completed about July 15.

Three New Pools and an Extension Encourage Kansas Wildcatters

WICHITA, Kansas.—The extensive leasing and drilling play of Kansas was materially improved during the past week, when three new pools were opened, another extended nearly three miles, and a deeper producing horizon located in still another. These important developments are in addition to the three new pools and a large extension made during the preceding week.

The improved outlook is particularly true of the central Kansas campaign. Sedgwick and Harvey Counties took the limelight with a great display of wildcat producers. Sedgwick County, which until last summer had not a single producing pool, now has increased its producing spots to six, all in the northeast portion, while Harvey County for the first time entered the oil producing column.

From the standpoint of future developments the most important strike is perhaps the Shell Petroleum Corporation's Haury 1, NE NW SE Section 11-23-2w near Halstead in Harvey County. This county located in a central position of the great campaign in the central portion of the Sunflower state, has seen the drilling of a large number of wildcats since the discovery of the Valley Center pool last August. Tests completed have had encouraging showings of oil, while two commercial gas wells have been completed by Shell Petroleum Corporation near Halstead on its big block of acreage.

The Haury test was the original gas well of the county. It came in for 20,000,000 feet and was shut in. Recently Haury 1-B, was drilled in as a gas well and showed a spray of oil. This prompted Shell Petroleum Corporation to deepen Haury 1 with the result that it came in for an initial production of 175 barrels per day from chat at 3045 feet. The well is holding up around 160 barrels per day at this time.

The new producer is more than 20 miles northwest of the Valley Center pool. No doubt drilling will be doubled in the area between these two spots. Increased operations will probably be in order throughout the eastern half of Harvey County, spreading into southwestern Marion County, along the trend of the Valley Center play.

In Sedgwick County

Shell Petroleum Corporation also figured prominently in the development of the new areas in Sedgwick County. It's Lygrisse wildcat in SEc NE Section 15-26-2e, six miles southeast of the Goodrich field, eight miles northeast of Wichita and about nine miles east of the Valley Center production, looks like a good chat formation producer. Top of the chat was found at 3164 feet, with the top of the pay at that depth. While only two feet in, the well filled up with oil and has made a few flows, averaging around 10 barrels hourly. It has been shut in for connections and tankage. Estimates on the size of the well run from 500 to 1200 barrels.

In the Goodrich field, Marland Production Company's Westerfield 1, NW SE SW Section 16-25-1e, south offset to the discovery well, which average 1900 barrels daily last week from the chat, penetrated the Simpson dolomite at 3331-45 feet and produced 171 barrels of oil. The next day it made 241 barrels in 15 hours. This well had a hole full of water in the chat at 3000 feet. The Simpson is the same pay horizon that produces at Valley Center a short distance south.

The second chat producer in the Goodrich field is being completed. It is Marland Production Company's Goodrich 2, NW NE SW Section 16-25-1e, north offset to Goodrich 1. The top of the chat was found at 3004 feet and at 3038 feet the well filled up 1500 feet with oil in one and one-half hours.

These interesting completions completely took the interest away from the Valley Center field, where there was a lack of important completions. Production of this area continues to hold up around 27,000 barrels per day.

McPherson Has Promise of New Pool

Ted Washabaugh's Vosshell 1, NEc Section 9-21-3w, 15 miles south of the McPherson gas pool, and about the same distance northwest of the Shell Petroleum Corporation's Haury producer in Harvey County, topped what is probably the Simpson sand at 3301 feet and at three feet in was shut in while doing three barrels per hour. There is no tankage or connections and drilling in of the test will await the completion of tankage.

This wildcat is a very important test and is located just six miles north of the northwestern corner of Harvey County. Its position will result, regardless of its final outcome when drilled in, in spreading the intensive play. The area now covered includes Sedgwick with the exception of the southwestern quarter, all of Harvey, McPherson, western part of Marion, and is spreading into Saline and Dickinson counties.

No Change in Last Week's Strikes

Reports from the important discoveries of the preceding week show little if any change. The Gypsy Oil Company's Williams 1, NW SE SW Section 16-35-3w, along the Oklahoma-Kansas state line in Sumner County, is still pinched to about 15 barrels per hour. It is waiting on the completion of a line to the loading rack at Caldwell. The well will probably be deepened sometime this week.

The two strikes in Western Kansas belonging to the Phillips Petroleum Company showed no change last week. The company's Leiglieter 1, NEc NW SE Section 10-16-18w, a rank wildcat 11 miles from the nearest producer, a gasser drilled several months ago by Danciger Oil & Refining Company, has a total depth of 3570 feet and is producing between 3,000,000 and 4,000,000 feet of gas. The well is in Rush County. The tools are now lost, the line having been broken when the gas blew the tools up in the hole. This caused the hole to bridge. The hole has now filled up with water, but this is believed to be coming from behind the pipe, which probably was damaged by the gas blowout.

Danciger Oil & Refining Company's Schemiedler 1, NWc Section 20-12-17w, two miles south of the Phillips Petroleum Company's Shutts producer, which came in last November for around 350 barrels on the swab, is making about 125 barrels daily through 35 feet of cavings. Top of the Oswald pay was at 3429 feet and it has a depth of the same measurement. It is being cleaned out and a liner will be run. This well is in the heart of a big block of Phillips Petroleum Company acreage. Apparently this area in northern Ellis County will develop into a fair size pool, judging from the present outlook. The oil tests 35 gravity. There is at present no pipeline outlet for the oil.

Tulsa.—Tidal Oil Company-Twin State Oil Company-Simms Oil Company-Gardner Oil Company's community wildcat test Halberson 1, Section 31-5n-2e, in northwestern Pontotoc County, topped the Viola lime at 3989 feet and is shut down, running pipe at total depth of 3996 feet. It is apparently running higher structurally than any of the other few wildcat tests previously drilled in the district. The companies own quite a block of acreage in the district.

Tulsa.—Sinclair Consolidated Oil Corporation has taken a group life insurance policy with the Metropolitan Life Insurance Company covering all of its 10,000 employes. The policy is said to be the largest co-operative policy yet issued. It becomes effective May 1 to all employes who will have availed themselves of privileges offered under the co-operative insurance program. The total coverage will be not less than $25,000,000.

Space Reservations Made For Exposition

Tulsa.—First reservations for space in the eighth annual International Petroleum Exposition and Congress reached headquarters Monday of this week. Those with space last year were given opportunity to reserve space this year only last week and the returns received Monday were chiefly from concerns with headquarters in Tulsa and other Oklihoma cities. Many are asking for additional space over that used last year.

The exposition and congress will be held here October 5 to 12 at the permanent site east of the city.

A downtown office has been opened at 124 West Third Street, where the business of the organization will be maintained until just previous to the opening of the exposition. Publicity matter and advance reservations for space are the chief activities at present.

The executive committee is scheduled to meet this week to select a manager for the next exposition.

Both the executive committee and the committee on buildings and grounds made an investigation of the plant recently for the purpose of making recommendations as to changes and additions to facilities. A building will be provided this year for meetings of different technical groups. Later the several organizations of this type within the petroleum industry will be asked to hold meetings during the exposition and use the facilities provided for the purpose.

Seminole Wildcat

Tulsa.—The wildcat test of Sinclair Oil & Gas Company on the Davis farm in the NW NE SW Section 7-6-8, between Wewoka and Allen fields of Seminole County has found water in the Wilcox sand. This well has been producing better than 1000 barrels daily since encountering the Viola lime. After entering the Wilcox sand at 4199 feet and penetrating it two feet, it started cutting two per cent. It will be plugged back to 4198 feet and completed as a Viola and Simpson formation producer.

Safety Engineers Form Association

Tulsa.—A temporary organization of safety engineers of the Mid-Continent has been formed at Tulsa. Its membership will be drawn largely from safety engineers of the petroleum industry. The meeting was held at the headquarters of Don J. Wallace, director of the safety section of the Mid-Continent Oil & Gas Association.

Elmo D. Murphey of the Mid-Continent Petroleum Corporation is president; R. L. Bannister of the Gypsy Oil Company, vice-president; J. C. Young of the Tidal Oil Companies, secretary. These officials with D. J. Wallace, ex officio, were named as a committee to prepare a constitution and by-laws.

It is hoped that similar organiaztions can be formed for North Texas, South Texas and the Louisiana-Arkansas territories.

The purpose will be to have safety engineers meet once a month to discuss the problems of safety work in the petroleum industry.

A second meeting of the Mid-Continent chapter will be held in May to form a permanent organization.

Winkler County Asks for Proration Extension

Fort Worth, Texas—Extension of existing proration rules in Winkler County area for another six month period after the present term expires May 5 has been recommended to the Texas Railroad Commission by the proration advisory committee, according to L. E. Barrows, chairman. Formal request to this effect was made April 16, accompanied by a statement that operators controlling about 96 per cent. of the total potential production and 93 per cent. of the total allowable production had voiced their approval of the continuance of proration enforcement.

The Commission has called a meeting of Winkler County operators to be held in Austin May 3 for a public hearing in order that there may be no interruption in the proration plan. According to the advisory committee, a cessation of proration rules in Winkler County would subject the field to unnecessary exploitation which would result in waste and would sacrifice much of the advantage gained during the time that the field has been under proration enforcement.

Tulsa.—A three-inch natural gas pipe line is being laid from the Empire Gas & Fuel Company's natural gasoline plant near Madison, Kansas, to that city and city mains are now in process of construction under direction of engineers of Gas Service Company, a Cities Service Gas Company subsidiary. It is planned to have gas service ready for the citizens of Madison in about 45 days. A similar installation is being made at the town of Olpe, north of Madison, this service coming from the Emporia line.

Tulsa.—Central State Power and Light Corporation has completed construction of a 6⅝-inch gas transmission line between Elk City and Carter, connecting to wells in the Sayre field. Cost of the line was approximately $125,000.

Tulsa.—A test for oil has been started near Papillion, Nebraska, near Omaha, by Karl C. Schuyler of Denver. The well is now down several hundred feet. The test is reported to be on a very good geological structure that is favorable for finding of oil.

Wilbur Calls Conference On Kettleman Hills

Los Angeles.—Pursuant to a call from Secretary of the Interior R. L. Wilbur, operators and permittees in Kettleman Hills field met here April 19 for the purpose of formulating plans for curtailing operations in the area. The meeting was called to order by W. F. Humphreys, who had been designated by Wilbur. F. C. van Deinse, umpire for California, was elected permanent chairman.

The operators adopted the following resolution:

"Whereas: Honorable Ray Lyman Wilbur, Secretary of the Interior of the United States of America, has called this conference of the permittees and operators interested in government oil and gas permits in the Kettleman Hills district, and has suggested that a plan be devised to prevent the waste that would follow the drilling up of that promising area, Now Therefore

"Be It Resolved: That this conference approves in principle the suggestion of the Honorable Secretary of the Interior, and hereby authorizes the chairman to appoint a committee of seven to recommend a plan to effect the conservation of the oil and gas resources of that area."

The chairman appointed the following committee to devise some plan suitable to both the operators and government: E. D. Reiter, chairman; Ellsworth McGowan, secretary; W. H. Berg, W. L. McLaine, R. N. Ferguson, J. H. Raney and P. N. Longan.

It is believed that the plan proposed will call for a production not greater than 40,000 barrels per day on the North Dome, which is regarded as the critical area of the district. This production would be divided chiefly among four companies, including Standard Oil Company, Marland Oil Company, Milham Exploration Company and the Kettleman Oil Corporation and Pacific Western Oil Company, operating jointly. Production probably will be restricted until June 30, 1930.

Tulsa.—McCulloch Oil Company's Hollis 1, SE NW Section 16-10-6e, which was attempting to extend the Searight, Oklahoma, field to the north, topped the Hunton lime at 4300 feet and at 4313 feet had a hole full of water. It is drilling deeper.

Tulsa.—The major leasing play continues in Custer County western Oklahoma. In the southwestern part of the county, Indian Territory Illuminating Oil Company has taken over the J. C. Davis block in township 13-20w. C. B. Billington has taken some acreage in township 12-19w, Magnolia Petroleum Company has secured some in township 15-15w. Reiter Foster Oil Company, Independent Oil & Gas Company and J. S. Cosden & Company, are among others to purchase leases recently.

North and West Texas Field Notes

H. H. KING, *Staff Representative, Fort Worth, Texas*

Gulf Applies Back Pressure to Ward County Wildcat

SAN ANGELO, Texas. — Voluntary proration of crude production was started Monday by Gulf Production Company of its O'Brien ranch wildcat discovery well in Ward County through the application of 440 pounds of back pressure. This wildcat flowed 1390 barrels of 38.5 gravity oil through 2½-inch tubing with the above volume of back pressure during the 24-hour period ending Tuesday morning from the sandy lime producing horizon at 2600-31 feet, with about two million cubic feet of wet gas.

Gulf Production Company is rigging up on two new tests, and plans to keep two strings of tools busy on the block, but all future wells will be produced on a restricted basis. This company is adhering to the above policy on the interior of its McElroy property in Crane County, and has three wells that have been flowing steady through tubing for several years with a combined yield totaling nearly three million barrels, and still averaging about 800 barrels daily each.

Swabbing test given April 19 on Mid-Kansas Oil & Gas Company's wildcat producer on the W. E. Lackey ranch, northeastern Coke County, yielded about 75 barrels of oil, testing 42° gravity at 80° temperature, in five hours, thus establishing a new pool for the West Texas district. This well is producing from sandy-lime at 3750-56 feet, with six-inch casing landed about 100 feet off bottom. The swab was not lowered beyond this string of pipe in making the above test. The well filled at rate of 200 feet of oil per hour after cleaning the hole, and plans are to run a string of 5 3/16-inch casing because of cavings to the top of the pay before deepening. This wildcat is located in the southwest corner of Section 272, Block J-A, H.&T.C. Survey, on a large block of leases, and is on a direct line about mid-way between production coming from lime in Runnels and Mitchell Counties.

W. A. Moncrief-W. W. Donnelly et al's wildcat producer on the J. S. Todd ranch, Crockett County, failed to increase in production when deepened to 1381 feet after passing up small pumper at 1365-69 feet, and at last reports was running five-inch casing to the bottom of the hole to deepen. The casing is being used as a guard for the upper pay. Should deeper drilling bring forth a flow of water, the owners are hopeful of plugging back and making a small pumper later. Ira Nourse & E. Tilton's wildcat test on the Cramer land, Runnels County, developed a light show of oil from 85 feet of lime encountered at 3515 feet, but deeper drilling failed to increase the showing.

Attempted Extension Unsuccessful

Unsuccessful efforts were made by Shell Petroleum Corporation and Llano Oil Company to widen the Scarborough ranch production in northern Winkler County about three-quarters of a mile to the northeast with their Scarborough 5, as a hole full of sulphur water developed at 3565 feet. However, this pool was widened recently to the south by Prairie Oil & Gas Company's Scarborough 1, which was flowing 125 barrels clean oil daily at 2930-3053 feet, with plans to drill to 3100 feet. Tidal Oil Company is starting an east offset to this producer.

Gulf Production Company's wildcat producer on the G. W. O'Brien ranch, which established the second oil pool for Ward County, gauged 1388 barrels of 38 gravity oil flowing steady on 12-hour test late last week after making pipe line connection April 18. This well is producing from sandy-lime at 2600-31 feet, and is to be equipped with tubing before tools are moved off to one of the pair of new locations staked for prompt drilling. Gulf Pipe Line Company laid four and one-half miles of four-inch pipe from this well to the SW¼ Section 78, Block "A," Ward County, where connection was made with its Midland-Hendrick trunk line extension. Gulf Production Company is building four 80,000-barrel steel tanks at this point to handle the Ward County oil separately, because of its better quality, while in the meantime shipments of Hendrick crude via the new line to Midland has been temporarily postponed. Gulf Production Company is assembling materials to drill O'Brien 5, which has been located 330 feet from the northwest corner of SW¼ of Section 18, Block "F." The second location for the O'Brien area will be known as Hutchings Stock Association 2, located 330 feet from northeast corner of Section 7, Block "O," thus giving a test of the north and south trend of production.

Shipley Pool Well Increases

Atlantic Oil Producing Company & Delmar Oil Company's Hayzlett 1, offsetting the discovery well of the Shipley pool, Ward County, materially increased its production after plugging back from water at 2506 feet and shooting with 80 quarts of nitro-glycerine at 2473-2500 feet. This well started flowing 15 to 20 barrels per hour, and is credited with making 415 barrels in 16 hours, but soon dropped to 200 barrels daily. Prior to being shot, the flow was averaging about 55 barrels daily, or similar to that of the other two completed wells in the pool.

Group One Oil Corporation's University 1-B, which is producing from pay at 8500-23 feet, thereby giving the Big Lake field three prolific horizons, registered new peaks on oil and gas flows during past week, having gauged 2475 barrels of 56 gravity oil and 23,637,000 cubic feet of wet gas during 24-hour period ending at seven a. m. April 20. The oil flow remained above the 2400-barrel level on the two days following. Big Lake Oil Company is at work on three nearby tests that are scheduled to try for this record depth pay. Drilling has reached 4715 feet on its University 131.

Pure Oil Company Sells West Texas Production

Fort Worth, Texas.—Pure Oil Company has sold its producing properties and undeveloped acreage in Hendrick field, Winkler County, to the Lion Oil & Refining Company, El Dorado, Arkansas, for a cash consideration of three million dollars. Date of purchase is retroactive to April 10, although final details were not consummated until April 20.

M. E. Wilson, vice-president in charge of production for Lion Oil & Refining Company, is mustering together an organization to proceed with development of the acreage, as heretofore this organization's activities have been restricted to Arkansas.

In connection with the deal, Lion Oil & Refining Company receives four quarter-section tracts with 13 40-acre units on production, with a number of inside locations available for drilling. This property has 39 wells which earned for the current period a daily allowance of 12,239 barrels under proration through having registered an estimated potential production of 278,803 barrels on latest proration figures. About 620,000 barrels of storage oil, and large tanks containing same are also included. Pure Oil Company has produced about 5,750,000 barrels from this property.

Owing to Magnolia Petroleum Company's having contracted with Pure Oil Company earlier in the year to run and purchase 15,000 barrels daily with Pure Oil Company to be run from the above property over balance of year, Lion Oil & Refining Company will not have any crude to refine or market until outstanding contracts are filled.

Magnolia Pipe Line Company built a 10-inch line from Midland largely to buy this oil from Pure Oil Company, having

completed same April 12, and is to pull on the storage oil to make up the deficit when daily production is below the 15,000-barrel level.

Although this sale removes Pure Oil Company from the major oil producer class in Texas, the company has about 7200 barrels of settled production scattered over the state.

Yates Proration Raise is Held in Abeyance

Fort Worth, Texas.—Efforts launched early last week by Mid-Kansas Oil & Gas Company to have the allowable production of Yates field advanced immediately to 100,000 barrels daily in order to permit an increase of 12,500 barrels daily on its pipe line runs have been temporarily suspended until a special meeting of the proration advisory committee can be held here about April 30. A minority vote of the advisory committee disapproved the proposed increase, while the waters were mudded by the Shell Petroleum Corporation asking for 5000 barrels of crude runs from the field for its transportation subsidiary, Shell Pipe Line Company.

After encountering opposition to the increase in allowance being made, officials of Mid-Kansas Oil & Gas Company notified the Texas Railroad Commission that its request will be temporarily held in abeyance. The formal request for the 12,500-barrel increase, which was originally authorized by the commission January 12, but delayed because of pipe line congestion, was made by Mid-Kansas Oil & Gas Company, April 16, and the attention of the commission as to this latter date was stressed. A contest may develop as to which of the four pipe lines serving the Yates field will get the oil should the production be increased.

Humble Oil & Refining Company, which is handling about 28,500 barrels daily from Yates, and marketing an even greater amount of the same crude that comes from Mid-Kansas Oil & Gas Company on a long time contract, Gulf Production Company and California Company voted against the increase. Gulf Pipe Line Company is handling about 9500 barrels daily, or about 2500 barrels less than the amount being produced by Gulf Production Company. Shell Pipe Line Company is only receiving about 14,000 barrels daily, and is in need of a larger quota to aid in keeping its 80,000 barrels of trunk line capacity loaded, while The Texas Pipe Line Company is tapping the field with a 12-inch line, with no appreciable amount of crude in sight yet from this particular field.

J. V. Thomas, vice president of the Natural Gas Equipment Company, with headquarters in Los Angeles, returned to California April 20 after a short business visit to Tulsa, and other Mid-Continent points.

Gulf Will Loop Unit of West Texas Trunk Line

Fort Worth, Texas.—Gulf Pipe Line Company will start laying immediately a 30-mile eight-inch loop on the south end of its Crane-Midland unit of the West Texas trunk line system, thereby affording a double eight-inch pipe line from McElroy area to the Midland tank farm and station. This new loop will boost the capacity from 24,000 to more than 32,000 barrels daily, thereby relieving congestion, and possibly making room for increased shipments later on from Yates field, where Gulf is handling 9500 barrels daily, or about 2000 barrels under the current production of the Gulf Production in this flush area. Gulf Pipe Line Company has a 10-inch carrier extending east from Midland that is to be increased to 50,000 barrels daily by the construction of three new stations, and more than 400 miles of eight- 10- and 12-inch loops between this point and Port Arthur.

Trinity Sand Test in West Mexia Disappointing

Mexia, Texas.—C. F. Lytle and associates encountered only a small show of gas and salt water April 21 when cement plug was drilled on their Thompson 1, which is the second test located on the west side of the old Mexia field to make a try for production in the Trinity sand horizon. The Lytle test cemented a string of new seven-inch O.D. pipe after taking a favorable core at 6033 feet about one month ago. The test was credited with a total depth of 6060 feet when bailed Sunday, and several flow tanks were erected on the lease in anticipation of a successful strike being made at this horizon.

Deep Sand Is Found In Tiner-Smith Pool

Abilene, Texas.—Discovery of a new deep oil horizon in the Tiner-Smith pool, Jones County, was made last week when The Texas Company and J. S. Cosden & Company, Inc.'s Laura Carter 6 swabbed at rate of 320 barrels of 38 degree gravity oil daily from sandy-lime at 2741-44 feet after proving dry in regular pay horizon at 2460-86 feet. This test is located in the northeast part of 173½-acre lease in section 13, block 19 T & P survey, and may result in nearby small producers being carried deeper.

Gulf Buys Tanks

Fort Worth, Texas.—Gulf Production Company has purchased four 80,000-barrel steel tanks to be erected on a new West Texas tank farm being established in the SW¼ of Section 78, Block "A," near Monahans, Ward County. This tankage is being built to provide separate storage for the high gravity oil being produced by Gulf's recent wildcat strike on the O'Brien ranch. It is also along the route of Gulf Pipe Line Company's recently completed Midland-Winkler County trunk line extension. Four and one-half miles of four-inch line connects the O'Brien producer with this trunk line, deliveries having been started on the afternoon of April 18.

Leo J. McLaughlin, for the past six years connected with the Mid-Continent Petroleum Corporation, has resigned to accept a position as auditor in the Ada, Oklahoma, marketing division of the Marland Refining Company.

Winkler Potential Estimate Above Actual

(Continued from page 49)

daily quota earned for the last half of April.

Shell Petroleum Corporation's Winkler properties were credited with an estimated potential of 125,850 barrels on April 15 from 40 wells on 18 units, or a loss of 171,460 barrels in potential for the six months interval. Shell Petroleum Corporation's current allowance from this property is 9,427 barrels daily, as compared to 14,436 barrels when the county was at its peak. The joint property of this company and The Texas Company has sustained an even greater drop after being credited with a potential of 338,124 barrels on October 15, as the latest figures credit their 44 wells on 16 units with a potential of 149,706 barrels, or a decline of 188,418 barrels. This partnership's current production quota is 9,528 barrels. The Shell Pipe Line Company, which has two 10-inch trunk lines with a combined capacity of 80,000 barrels daily, and the Texas Pipe Line Company, which is soon to start operating a 12-inch trunk line to the coast, with 10-inch extension via Winkler County to Lea County, New Mexico, have been particularly active in recent weeks in trying to book additional crude connections in other sections of West Texas to partially offset the rapid slump in crude supply taking place in Winkler County. A similar situation faces the Atlantic Pipe Line Company in the near future.

To Cut Potential Figures

Initial steps towards trimming potential production figures and elimination as far as practical of the frequent opening of flowing wells in Winkler County for potential gauges is now being given attention by the Winkler County proration advisory committee.

A recent survey of all wells in Winkler County credited 86 with flowing open; 173 pumping; and 303 wells flowing against back pressure, making a total of 562 active wells, while 450 of these were credited with making b.s. and water in quantities that required treating of the fluid.

Louisiana--Arkansas Field Notes

Offset to Mount Holly Discovery Shows Unfavorably

SHREVEPORT.—Results of the first test of an offset to the discovery well in Mount Holly district in Ouachita County, Arkansas, located between the western edge of Smackover production in the Louann sector, and the eastern edge of Stephens in Columbia County, did not give the local oil fraternity a feeling of optimism. The results of two drill stem tests made last week were far from satisfactory.

The tests were made in Atlantic Oil Producing Company's and E. M. Jones' Allen A-1 in Section 25-15-18, a half mile northeast of the discovery well, Wilson B-1 of Charles McDonald in the same section. The Allen well tested 235 feet of salt water in 10 minutes from 2849-59 feet. The operators performed another drill stem test from 2860-66 feet and obtained 500 feet of salt water in a 15-minute period. The hole is being cored at 2988 feet. Production in the discovery well was obtained at 2866 feet.

Another test, an eastern offset to the discovery well and 500 feet away, Root Refineries' Wilson 1 in Section 25-15-18, also encountered bad luck Friday when 1,800 feet of 6⅝-inch casing was dropped into the hole while an effort was being made to set the string. A fishing job is under way. Depth of this hole is 2844 feet.

Wilson Brothers' Wilson A-1, also in Section 25-15-18, a quarter of a mile south of the discovery well, has been deepened with tools to 2873 feet from 2857 feet, where it made oil by heads. The well is being pumped. A three-day gauge showed the following yield for the first three days it was put on the beam: 45 barrels, 75 barrels, and 81 barrels. Two per cent. of the yield is water.

A northern offset to the discovery well, Charles McDonald's Wilson B-2, is coring at 2354 feet. Magnolia Petroleum Company is coring at 2781 feet in C. M. & K. Wilson 1 in the same section after coring red shale from 2759 to 2763 feet.

Drilling Near Discovery Well

Two and a half miles northeast of the discovery well, Flaucher and associates are drilling at 2475 feet in Bucks 1 in Section 7-15-17, after testing one fourble of salty drill water in a drill stem test from 2260 to 2270 feet. Cumberland Petroleum Company is drilling at 950 feet in Burton 1 in Section 24-15-18, 10-inch casing having been set at 78 feet. Two miles west of the discovery well, in Section 27-15-18, L. L. McDonald and associates have derrick pattern for Crowley 1. The location is in SE of NE of the section and is the first new location made in the new district in a fortnight. It is understood the Cumberland Company plans a second test in 27-15-18.

Exactly six miles north of Charles McDonald's producer, Timberlake and asociates, are preparing for a drill stem test at 1784 feet, after topping the Nacatosh sand at 1762 feet. Timberlake and his associates have disposed of half their holdings in a tract of 1,088 acres surrounding their test to Rowlett Paine of Memphis. The acreage lies in Sections 14, 23, 25, 26, 30 and 35-14-18.

The southeastern edge wells of Champagnolle in Union County, Arkansas, drilled as offsets to the Ohio Oil Company's W. N. Raulston 1 in Section 12-17-14, have followed the behavior of the Ohio's well in showing large amounts of salt water soon after completion. The percentage runs about 50 per cent. oil and 50 per cent. water. One of the wells completed during the last week extended production a quarter of a mile south and a quarter of a mile east.

The two latest tests completed in that part of the field are Ohio Oil Company's Sam Oliver 1 in SW SW of Section 7-17-13, which came in at 3048 feet in six feet of sand making clean oil through a five-eights inch choke, salt water soon appearing; and the same company's B. H. Raulston 1 in SE SE of Section 12-17-14, completed at 3017 feet, and is flowing now at the rate of 1,230 barrels of oil daily through 1½-inch choke, with an equal amount of salt water. The Oliver well is a quarter of a mile east of the B. H. Raulston 1, the latter being a quarter of a mile south of the W. N. Raulston 1 in Section 12-17-14.

Champagnolle Extended

The Oliver well is also a quarter of a mile south of Arkansas Natural Gas Corporation's Morris 1 in NW SW of Section 7-17-13, which gauged 660 barrels net oil in a 24-hour gauge through a 7/16-inch choke. The Morris well is also making 38 per cent. salt water and basic sediment. Total depth is 3037 feet with six feet of sand. The Morris well is a quarter of a mile east of the W. N. Raulston 1 of the Ohio Oil Company and about the same distance south of former production in the northeast extension of Champagnolle. The Oliver well extends Champagnolle production a quarter of a mile south and a like distance east. The B. H. Raulston well extends production a quarter of a mile south. The Oliver well in the first 19 hours flowed 1,785 barrels of net oil and a similar amount of salt water through a 1½-inch choke.

One new location was announced for the southeastern edge of Champagnolle during the last week. It is Ohio Oil Company's Lynn 1 in Section 7-17-13.

Gulf Refining Company, which several weeks ago extended the upper producing horizon of the Champagnolle field two miles southwest, into the old El Dorado east field (Calion) by completion of its Gaddy 2 in Section 30-17-14 as a big gas well is planning to kill the well at 2859 feet and deepen it in a search for oil. The well will be drilled to 3,500 feet. The Gulf Refining Company is also down below the level of the second and deepest horizon of Champagnolle in its Rosa L. Cook 1 in Section 1-18-15. This well is being cored at 3184 feet after testing 200 feet of salt water in five minutes in a drill stem test from 3140 to 3153 feet. The formation just below 3153 feet was said to be red sandy shale.

Moro Bay Locations

In Calhoun County, Moro Bay district, where Joe Hurley several weeks ago abandoned Arkansas Land and Timber 1 at 3302 feet, after making an interesting test at 2314 feet, two new locations have been made by Phillips Petroleum Company and assocates. J. W. Kline 1 in southwest corner of NE of SE of Section 28-16-12 will be drilled, although latest advices are that the lo-

(Continued on page 66)

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Gulf Coast Field Developments

JACK LOGAN, *Staff Representative, Houston, Texas*

Raccoon Bend Production Boosted by Completions

Houston.—Humble Oil & Refining Company and Valley Oil Corporation added two producers to Raccoon Bend field, Austin County, during the past week, with 617 barrels initial production. Urban 3 well flowed 500 barrels pipe line oil from 3360 feet April 20, and Hardy 3, in the north end of the field, produced 117 barrels from 3216 feet.

Raccoon Bend field had a daily average yield during the week ending April 20 of 2550 barrels as compared with 2200 barrels for the week before. Raccoon Bend wells are being produced against back pressure by Humble Oil & Refining Company, which is in charge of developing and operating the properties.

Pierce Junction

Houston.—Rio Bravo Oil Company's Settegast A-12, located on the west side of Pierce Junction field, gauged 2210 barrels April 23 after completion last week from sand bottomed at 4640 feet. Settegast A-13, another completion of last week, flowed 1600 barrels from 3660, the upper producing horizon on the west side of the salt dome.

Pierce Junction field, now the second largest producer in the Gulf Coast region, had a daily average of 15,850 barrels for the week ending April 20, a gain of 150 barrels over the previous week's daily yield. Production from these two flush producers, however, does not show up on the week ending April 20, but will serve to increase production for the week ending April 27 to a new peak for the past few months.

Bashara Well Completed

Houston.—Joe Bashara's Tarbutton 1, on the east side of Barbers Hill field, Chambers County, and 120 feet north of Humphreys Corporation's Cornelia Barber 1, flowed 750 barrels from 64 feet of sand bottomed at 5236 feet. The production on completion was two per cent. water, and the crude tested 26.2 gravity. Five joints of four and one-half-inch screen were set in this deep hole.

Humble Extended

Houston.—The Texas Company extended the deep sand production area on the north side of Humble salt dome approximately 800 feet by completing House 22, deep test for 600 barrels of 26 gravity crude April 17 from 5051 feet. The new producer is that distance northeast of Sun Company's River lease and opens the probability of deep development on 800 acres in the House lease.

Ranking officials of the Atlantic Refining Company, Philadelphia, spent most of the past week making an inspection tour of West Texas and Southeastern New Mexico, where the Atlantic Oil Producing Company is a large producer and lease owner, while the Atlantic Pipe Line Company, another subsidiary, has a 10-inch trunk line that extends from Winkler County to the Coast. The party included the following: W. J. Van Dyke, chairman of the board; W. M. Irish, president; W. M. O'Connor, secretary; and Mr. Goldsmith, chief engineer, all of Philadelphia; E. H. Blum, Dallas, general manager, Atlantic Oil Producing Company; R. B. Whitehead, Dallas, chief geologist; W. M. Irish, III, Dallas, manager oil purchasing and marketing division; Fred G. Leidecker, Dallas, superintendent of production; R. W. Howe, general manager Atlantic Pipe Line Company; and H. M. Staggs, Dallas, engineer for Atlantic Pipe Line Company and also member of the planning committee for Atlantic Oil Producing Company.

Joe Jensen's Mother Buried in Utah

Joseph Jensen, chief petroleum engineer for the Associated Oil Company with headquarters at Los Angeles, was called to Salt Lake City, April 15, on account of the serious illness of his mother, Mrs. Anna S. Jensen. Mrs. Jensen, aged 77 years, died April 16, and the funeral was held April 18 at Salt Lake City, where she had resided for many years. She is survived by four sons and one daughter. Her husband died a short time before the birth of the last child, and she had the satisfaction of living to a ripe age, and to see all the children raised to man and womanhood.

Above is pictured the superintendents, foremen, and agents (field clerks) of the Simms Oil Company taken during the annual conference held in Dallas, April 3 and 4. Those in the picture are as follows, reading left to right:

First row—G. R. Grant, agent, Smackover, Arkansas; R. B. McGuire, superintendent, Breckenridge, Texas; C. S. Fisher, superintendent, Okmulgee, Oklahoma; W. L. Todd, vice-president, Dallas; D. H. Voss, treasurer; Jas. L. Fairly, agent, Hebbronville, Texas; D. W. Gee, foreman, Mexia.

Second row—(seated)—F. F. Herzog, agent, Crane, Texas; H. W. Scott, superintendent, Smackover; L. W. Richards, secretary; A. J. Mitchell, agent, Mexia; R. R. Forster, superintendent, Corsicana; R. W. Taylor, superintendent, Archer City.

Third row—(standing)—H. A. Rike, superintendent casinghead gasoline plants, Smackover; Harold Downey, gasoline department, Smackover; J. B. Holloway, secretary to vice-president; Ira M. Avent, assistant to secretary; D. H. Harrison, Jr., assistant treasurer, Dallas; L. M. Davis, foreman, Smackover; C. F. Brooks, agent, Homer, Louisiana; J. L. Kirkpatrick, foreman, Archer City; J. W. Gammage, agent, Pyote, Texas; L. P. Blanton, agent, Breckenridge; D. R. Biggers, agent, Navarro, Texas.

Fourth row—A. H. Mims, agent, Olney, Texas; R. L. Moody, foreman, Archer City; Jas. L. Wright, agent, Smackover.

Fourth row (continued)—W. H. Leggett, foreman, Navarro; J. A. Pearl, superintendent, Hebbronville; L. E. Lewis, superintendent, Odessa, Texas; Jay Sandboe, agent, Archer City; L. P. Brown, agent, McCamey, Texas.

Last row—J. A. Tully, agent, Okmulgee; H. R. Bean, foreman, Homer.

Cancellation of Osage Lease Goes to Supreme Court

WASHINGTON, D. C.—Review by the United States Supreme Court of a decision of the Court of Appeals of the District of Columbia, which upheld the action of the Secretary of the Interior in cancelling a lease of Tidal Osage Oil Company, operating on the Osage lands, is being opposed by the Department of Justice.

Questions raised in the case are whether in the absence of bad faith or arbitrary action on the part of the Secretary of the Interior his decision is final and conclusive and not subject to review by the courts; and, if the secretary's decision is not final and conclusive but may be reviewed by the courts, whether the construction placed upon the terms of the lease is correct.

The lease involved in the case, according to a statement by the Department of Justice, was executed in July, 1919, under provisions of the act of congress of June 28, 1906, and the regulations of August 26, 1915, promulgated thereunder. The lease contemplated development and operation by the lessee company of oil and gas under 166,400 acres of land situated in Osage County, Oklahoma. The land is the property of the Osage tribe, a ward of the government, and under the provisions of the act of 1906, the lease was subject to the approval of the Secretary of the Interior. The controversy in the present case arose as to the amount of royalties due by the lessee under the provisions of the lease. While the company claims it has paid the royalties due, the secretary's contention is that there is a balance of $22,325 still due as royalties under the lease from 1923 to 1925. The secretary gave a decision that if the balance claimed under the lease was not paid within 30 days the lease under its terms would be cancelled.

It was for the purpose of restraining the Secretary of the Interior from taking this action that an injunction by the present suit was sought. The district court in the District of Columbia, however, upheld the decision of the secretary, and on appeal to the court of appeals of the District of Columbia the decree of the court below was affirmed.

The Department of Justice in opposing the granting of the writ for a review of the case has filed a brief in the United States supreme court in which it is contended that the Secretary of the Interior has power and authority to construe the terms of the lease and determine whether or not there had been a breach of the lease contract by the lessee. It is further contended that the construction placed by the Secretary of the Interior on the terms of the lease is not only plausible and reasonably correct, but has been upheld by both of the lower courts. Also, that the Secretary of the Interior was acting within his authority in determining a default in the payment of royalty, and that such action in this respect was conclusive and final. It is further pointed out by the brief that: "The lease will be found to contain a stipulation requiring lessee to pay royalty on a minimum of 10,000,000 cubic feet of gas per day, annually, in which event it is indebted under the terms thereof in the sum of $22,325.37; and the word 'utilize' as used in the lease does not permit the deduction, from said minimum royalty, of the amount of fuel gas sold to drillers."

In concluding the brief the department expresses the opinion that the decision of the court of appeals is correct, and that the application for the writ to review that decision should be denied.

Texas Petroleum Merger Completed

San Antonio, Texas.—The Texas Petroleum Company has been organized with a capital stock of $2,500,000 to absorb the producing properties, refinery and pipe lines of the Schimmel Production Company, Fort Worth. Texas Petroleum Products Company and Witherspoon Oil Company both San Antonio concerns, and will maintain headquarters in the Smith-Young Tower, San Antonio. The officers of the new concern are: V. G. Schimmel, president; C. Grover Shaw, 1st vice-president; Glenn R. Schimmel, 2nd vice-president; C. L. Meserole, secretary, and C. T. Lighthouse, treasurer. Other officials include: H. J. Kebodeux, superintendent production; J. H. Wyle, sales manager, and T. S. Shaw, traffic manager.

Schimmel Production Company's properties consisted of about 350 barrels in the Somerset field and about 50 barrels of settled production in the Central West Texas district, and a number of scattered wildcat leases and blocks. The office heretofore maintained by this concern at Fort Worth will be discontinued. Witherspoon Oil Company contributed about 150 barrels of Somerset production and a pipe line system through the merger. Texas Petroleum Products Company, which acquired the Somerset plant of the Witherspoon Oil Company about November 1, 1927, will also be dissolved. This plant is rated at 1500 barrels daily, and is to be enlarged by the new owners.

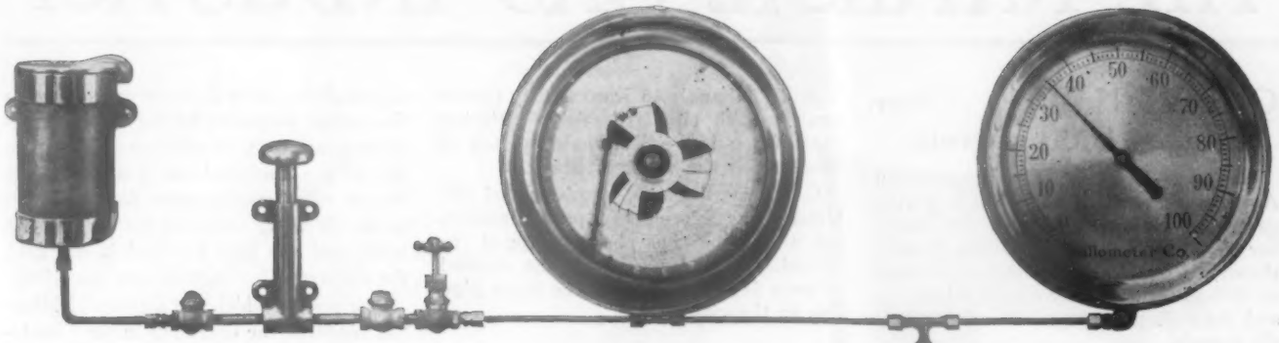
Senate Resolution Questions Hoover's Oil Policy

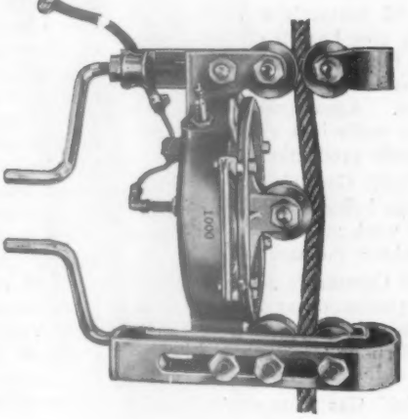
WASHINGTON, D. C.—President Hoover's policy of conservation for federal oil lands last week precipitated a fight in congress, where it was indicated that strong opposition will be offered to any effort of the president to limit oil production.

A full investigation of the presdent's powers with respect to the matter was sought in the senate in a resolution introduced by Senator King of Utah, which was referred to the committee on the judiciary, in which he declared the new policy "has summarily terminated the historic policy of the government so far as it relates to oil and gas within the public domain, and will prevent the development of the same, and deprive the United States and the states, respectively, of revenue and other benefits which they are now receiving and to which they are entitled under said leasing act."

Reciting the history of the oil lands leasing act, Senator King in his resolution pointed out that the total oil production from the public domain states has been and is about 3 per cent. of the nation's total, and will probably never exceed that percentage under the scale of development heretofore prevailing, while the gas production from the public lands is unequal to the existing local demand for consumption, which is steadily increasing.

Under the resolution the judiciary committee would be directed "to make full and complete inquiry and investigation as to the power and authority of the president to modify, suspend, or set aside said leasing act, or any action of congress, by executive statement or otherwise, or to deny to citizens of the United States the exercise of any rights granted them by said leasing act; and also to inquire into the power and authority of the Secretary of the Interior to promulgate or enforce orders, rules, or regulations designed to carry out said policy of the president announced on March 12, or to promulgate or enforce any orders, rules, or regulations to modify, suspend or set aside the said leasing act, or to deny to citizens of the United States the exercise of any right or rights granted to them by the said leasing act or by existing acts of congress; and said committee is also directed to make such further inquiries and investigations concerning the subject matter of this resolution as in their opinion is essential or desirable for a complete understanding and report thereon, and to make full report to the senate, together with its findings and conclusions in respect to such matters."





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THE NATURAL GAS INDUSTRY

Gas Well Work - Over Makes 1000 Barrels

Houston.—Houston Oil Company on April 18 completed Rooke 10, a workover gas well at Refugio field, Refugio County, for 1000 barrels of pipe line oil, flowing through a quarter-inch choke from sand at 3678-86 feet. Gravity of this oil is 23.3, and the well pressure on completion was 450 pounds.

Rooke 10 was completed late in February at 3512 feet as a gas well and was mudded in to drill deeper to the oil sand horizon. It it located 1200 feet northwest of Wilson Heard 5 of Houston Gulf Gas Company, which made 720 barrels at the same oil depth late in March.

Refugio field, formerly a producer of dry gas only, now has 10 oil wells producing from the lower depth, and much of the present activity is being done for oil production. Apparently the deepening of oil gas wells is a valuable source for future crude production.

Houston Gulf Gas Company's Rose Lambert 2 was being drilled into an oil sand late last week at 3646 feet with casing set just above the sand.

Oigufer Oil Company's Shelly-Ryals 1, northeast of production at Refugio field, showed 600 pounds gas pressure through a quarter-inch choke last week from sand at 3660 feet.

Houston Gulf Gas Company's Fannie Heard 7, a 300-foot west offset to Mission Drilling Company's Cummings 1, an oil producer on the east side of the field, flowed 100 million cubic feet of dry gas from 3679 feet late last week.

Expect Small Lines to Tie Into Main Gas Lines

San Francisco.—Construction of a large gas line from San Joaquin Valley to this and nearby cities is expected to result in the laying of many small lines to furnish gas to smaller cities along the route. The number of these short lines is expected to be determined by the surplus gas which the main line will carry. Some of the cities nearer the main gas supply may be served directly from the fields by their own lines. The development of the Kettleman Hills field will give more than a dozen large cities their first experience with natural gas.

United Gas Service Co. To Serve Oklahoma Cities

Bartlesville, Okla.—The cities of Woodward and Moreland, Oklahoma, have granted a 20-year franchise for natural gas service to the United Gas Service Company of Bartlesville. These franchises cover both domestic and industrial service. Cities Service Gas & Fuel Company's pipe line from the Texas Panhandle to Kansas City passes nearby each city. Elections ratifying these franchises will be held in each of these cities the week of May 20.

C. E. Burlingame, president of the United Gas Service Company, announces that pipe has been shipped to Woodward and work will be started at once laying line from the main pipe line to the city.

Chickasha Gas Production Checks Estimates

Washington, D. C.—In March, 1926, at the request of operators in the Chickasha gas field, Oklahoma, and in co-operation with Oklahoma and the Oklahoma City Chamber of Commerce, the Bureau of Mines issued an engineering report on that field, giving estimates of its recoverable reserves. R. R. Brandenthaler and E. P. Campbell, engineers of the Bureau of Mines, were co-authors of this report. The bureau engineers in submitting their report stated "past experience has shown that the method for determining gas reserves applicable to any field depends upon various factors. An intimate knowledge of field conditions, field methods, rock pressures, and amount of gas withdrawn (which would include fairly accurate estimates of the amount blown into the air) are necessary before any estimate of the recoverable reserves can be made."

Nicholas Zone Estimate

Recent figures on the gas production of the Chickasha gas field indicate with what degree of accuracy it is possible to estimate gas reserves if the estimates are based upon careful analyses of field conditions, as has been evidenced in this particular field. Two methods were used in estimating the original recoverable gas in the Nicholas zone—the saturation method and the volume-pressure method. Using the saturation method, the estimated recoverable gas, based upon a 60-per cent. recovery, was 24.7 billion cubic feet. Using the volume-pressure method, an estimate of 19.4 billion cubic feet recovery was obtained. After three years of gas delivery metered into pipe lines from the Nicholas zone, revised estimates, by the volume-pressure method, show that the original deliverable gas was approximately 21 billion cubic feet; a difference of less than eight per cent.

Ramsey Sand Estimates

For the Ramsey sand, the Bureau of Mines engineers in 1926 estimated by the saturation method that the total volume of recoverable gas was 64 billion cubic feet. Estimates as of March, 1929, by the volume-pressure method, indicate an original volume of deliverable gas of 57 billion cubic feet. If recognition is given to the fact that the later estimates are based upon gas that reasonably could be expected for sales delivery only, whereas the earlier estimates by the Bureau engineers considered, in addition to the quantity of gas marketed, the gas blown into the air when making open flow tests, gas to the air when removing water, wild gas wells, and gas used for fuel in the field, the difference becomes almost negligible.

The service which the Bureau of Mines has rendered the operators in the Chickasha gas field is evidenced by the fact that recently when a crater well occurred in this field and indications of gas migration were apparent, R. R. Brandenthaler, one of the co-authors of the engineering report on the Chickasha gas field, was requested to assist the operators in determining methods of controlling the escaping gas. More than a week was devoted solely to this problem, during which time recommendations for remedial work were made. The work of repairing wells is now in progress, and the indications are favorable for controlling the migratory gas.

Monroe—St. Louis Line

Tulsa.—Mississippi River Fuel Corporation has awarded contract for the south half of its 22-inch natural gas line from Monroe, Louisiana, to St. Louis to Williams Brothers of Tulsa. Oklahoma Contracting Company of Dallas, was given contract for the north half from Newport, Arkansas to St. Louis. Williams Brothers will also construct all gathering systems in the field and all river crossings. General contract for the project is under the management of Ford, Bacon and Davis, utility and industrial engineers. Work is to commence at once and the line is expected to be in operation by November.

Tulsa.—Work was completed recently 15 miles of welded gas pipe line which connects with the main line of Cities Service Gas Company at Saginaw, a short distance south of Joplin, Missouri, and extends in a southeasterly direction to Neosho, Missouri. Gas will be available for industrial and domestic consumption as soon as the supply line has been blown and tested. Construction of the town border regulating and measuring station at Neosho was completed April 6.

Tulsa.—Oklahoma Natural Gas Corporation has purchased from George Stogner of Chickasha, Oklahoma, 400 acres of producing leases in the Chickasha gas field for a consideration understood to be between $350,000 and $400,000. The properties have 20 producing wells with an estimated daily yield of 400,000,000 cubic feet.

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El Dorado, Arkansas
Seal Beach, California

News From Rocky Mountain Fields

Wildcat Well Penetrates Seven Sands, Report

Turtle Lake, N. D.—Herman Hanson Oil Syndicate reports a total depth of 900 feet in its well on Turtle Lake structure, Section 3-146-85, five miles southwest of this town, in McLean County. The well has been shut down during the winter. The operator reports that to the present depth, there have been seven sands penetrated, two of which contained slight showings of oil. Some oil and gas was encountered at 502 feet, and between 750-760 feet another showing was found.

Kevin-Sunburst

Great Falls, Mont.—More than a dozen wells have spudded in and are drilling in various parts of the Kevin-Sunburst field. Those in the southeastern part of the area will attract particular attention this year because of the new discoveries made there last fall which extended the field considerably.

Johnson Well Abandoned

Lyons, Colo.—C. E. Johnson's wildcat, McFadden 1, in the town of Lyons in Boulder County, Colorado, will be abandoned because of a crooked hole at 317 feet. His Campbell 1 is standing at 47 feet, and the Campbell 2 is drilling at 50 feet. The first well had some freakish high grade oil at 65 feet, the second had a pocket either of foul air or non-inflammable gas, and the third will drill out the shallow showing to discover whether it is commercial.

Wyoming Test Fails

Casper, Wyo.—The wildcat well of Prairie Oil & Gas Company on Little Sheep Mountain in Big Horn County, northern Wyoming, has been abandoned in granite at 3035 feet, after having drilled through all possible producing horizons. Location is on Section 33-56-95. There was considerable interest in this well as it was started as a test of the Deadwood formation. It made no noteworthy discoveries.

Stony Butte Structure Will be Drilled

Gallup, N. M.—Reserve Oil Company has equipment on location and is ready to rig up for its test of Stony Butte structure, about 36 miles from here. The company but recently took over the 3000-acre block which was held by Ohio Oil Company, and announced that its plan was for a maximum of 300 wells to be drilled; this is for the purpose of developing a production adequate to supply a pipe line and perhaps a small refinery.

Stony Butte structure has been favorably considered for some time. The first well was drilled there some years ago by Midwest Refining Company, which found commercial production at 850 feet. The well is now making about 36 barrels of 32 gravity crude per day, which is used chiefly to mix with the 64 gravity oil produced at Hogback and Rattlesnake. The well was originally intended as a deep test, but deeper drilling was never accomplished.

New Vineland Test

Denver.—Colorado operators interested in the recent activity in the Vineland district will probably have to wait for the Continental Oil Company to tell them the tale, for the discovery well is in such bad shape that it will have to be abandoned and the Continental Oil Company has made a transaction with the owners whereby a new well will be drilled alongside the discovery on NW NW 3-22-63. Other wells in the district are drilling more or less desultorily; two have encountered artesian water, one reports a showing of oil, and others are not deep enough to have discovered anything worthwhile.

Bannatyne Active

Great Falls, Mont.—Spring and summer of the present year will see considerable activity in and interest about the Bannatyne field, one of the structures which compose the Sweet Grass Arch. This field has several hundred acres proved for production; it is unique in that it is one of the few oil fields in the Rocky Mountain region which has a 70-foot producing sand. All the wells are small, but the thickness of the sand would seem to indicate their probable long life. Many operators are planning to enter the field, and about seven wells are rigged up or located.

Doodlebug Test

Casper, Wyo.—It is reported here that John Ackard has resumed his work on the wildcat well he is drilling at McKinley, Converse County, Wyoming, after having had the well shut down at 3070 feet for two years. Ackard is a prosperous wheat farmer in Colby County, Kansas, and his faith in the McKinley structure comes solely from what a dooldebug revealed to him. Ackard has spent about $160,000 of his own money on this well. He has drilled through the granite and is now in a black, unidentified formation.

Tulsa.—Bison Oil Company's Wolfe 1, NWc Section 17-1n-2e, rank wildcat in Murray County, gauged 9,000,000 cubic feet of gas and had a show of oil in sand at 2185-94 feet. It is to be deepened.

This well had 5,000,000 cubic feet of gas at 2193 feet. The additional foot of depth increased the flow 4,000,000 cubic feet and also resulted in an increased gasoline percentage in the gas.

Offset to Mount Holly Discovery Shows Unfavorably

(Continued from page 59)

cation may be moved a quarter of a mile south into Bradley County. The same company will drill Eagle Mills 1 2820 feet west and 1240 feet north of the southeast corner of Section 11-16-12.

Plugging back to the Nacatosh sand and perforating casing, continues to be practiced on a considerable scale in the old Smackover field, in both Union and Ouachita Counties. Five such operations were announced last week. Similar plans were announced for one old well in the heart of Champagnolle pool and for a perforation at the Graves sand in a Smackover well.

Arkansas Natural Gas Corporation in Snyder 6 in Section 34-15-15, Ouachita County, perforated casing from 1951 to 1968 feet and is pumping 25 barrels. The same company will do likewise in Snyder 7 in the same section from 1958 to 1969 feet. Magna Production Company shot casing at 2050 feet in Rhoten 6 in Section 32-15-15 and is pumping 100 barrels of fluid from the hole, 90 per cent. salt water. The Texas Company is rigging up to cement bottom and perforate at the Nacatosh in Johnson 8 in Section 34-15-15. H. M. Harrell, Trustee, will perforate casing at the Nacatosh in Flenninken 3 in Section 5-16-15, Union County. Lion Oil and Refining Company will perforate at the Graves sand in Flenninken 8, an old well whose depth is 2683 feet, located in Section 10-16-15. H. L. Hunt perforated casing from 3036 to 3038 feet in Gregory 1 in Section 10-17-14, Champagnolle, and is pumping 900 barrels of fluid daily from the well at that level, 77 per cent. of the yield being salt water. Total depth of the original well was 3249 feet.

In Drew County, Arkansas, McClintock and Goedke are trying to clean out their Ogle 1, a wildcat in Section 35-13-5. Total depth of the hole is 2530 feet.

Haynesville Extended

The western edge of the old Haynesville field of Claiborne Parish, which spread over slightly into Webster Parish, and the Shongaloo gas area of Webster Parish, were linked during the last week when J. W. Clark's Mayfield 2, in Section 20-23-9, Webster Parish, was put on the beam for 40 barrels from 2771 feet with eight feet of sand. Mayfield 1 in the same section last summer stood with 700 feet oil in the hole for some time, but was later abandoned.

In the Benson district of Sabine and DeSoto Parishes, L. M. Moffitt, Trustee, completed Boatright 1 in Section 3-10-13, 3069 feet, making 2,750,000 cubic feet of gas with a light spray of oil in 15 feet of sand.

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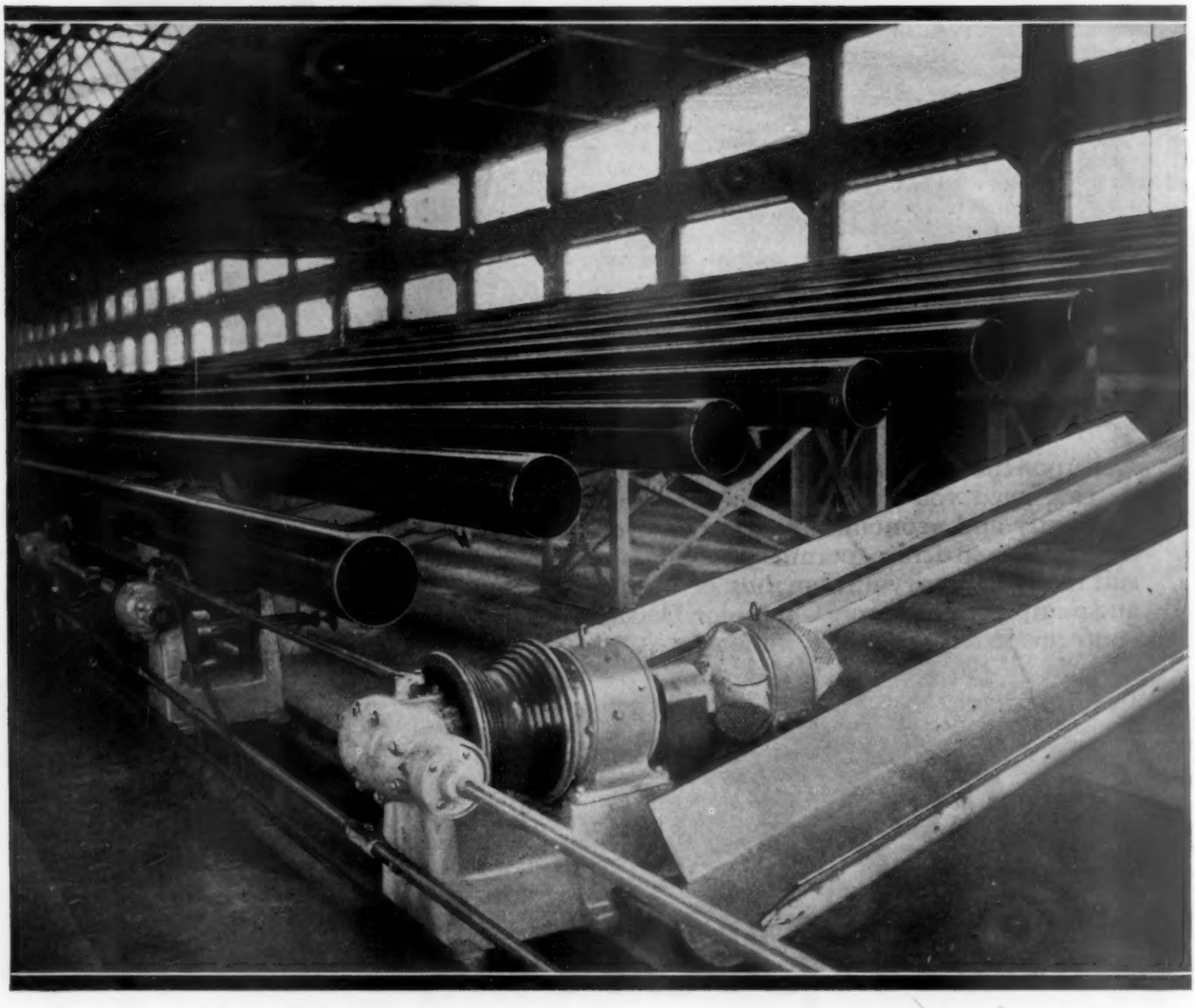

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LINE PIPE

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A Seismic Method of Determining the Deviation of Drill Holes

(*Continued from page* 32)

section of the arcs will give the location of that point on the surface H^1 directly above the detector with a very fair degree of accuracy. If it is desired to obtain a more accurate determination and if it is also desired to obtain a value of depth more accurate than that obtained by the chaining process, the following procedure may be followed.

From the approximate location of the point on the surface directly above the detector in the hole, place a number of shot points at distances s_1, S_2, s_3, s_4, etc. from the above determined position. The direction of these shot points is immaterial but they should be on a line. Leaving the detector at the same position in the hole, fire shots and determine the seismic times for each of the positions. The true depth and average vertical velocity may be determined with a very good accuracy from this data.

Let 1_1, 1_2 1_3 etc. be the length of seismic paths from shot points s_1, s_2.
t_1, t_2, t_3 etc. be the corresponding seismic times.
h is the true depth.
V is the true value of the average vertical velocity.

Then $1_1^2 = h^2 + S_1^2$ etc. (5)
Also $V = 1_1/t_1$ and consequently $V^2 = 1_1^2/t_1^2$ etc. (6)
Substituting for 1 in equation (6) its value from equation (5) we have the general equation for all points:

$$V^2t^2 - S^2 = h^2 \quad (7)$$

This equation becomes a lineal equation of the form

$$ax - y + C = O \quad (8)$$

if $a = V^2$; $x = t^2$; $y = S^2$ and $C = h^2$
If we plot these values of x as functions of y (t^2 as functions of s^2, where t is the seismic time for the surface distance s) then the points should fall on a straight line the slope of which is (a) and is equal to V^2 and the intercept of which is C and is equal to h^2. See Fig. 2. If it is not desirable to make this graph of such size as to enable the reading of V^2 and h^2 directly then they may be determined mathematically as follows:

Let (x_1, y_1) and (x_2, y_2) be the coordinates of two points on the line, not too close together. Then the slope (a) which is equal to V^2 may be determined $a = V^2 = (y_2 - y_2)/(x_2 - x_1)$;

$$V = \sqrt{(y_2 - y_1)/(x_2 - x_1)} \quad (9)$$

and the depth may be determined as follows:

$C = -h^2 = ax_1 - y_1$; Therefore $h = \sqrt{ax_1 - y_1}$ where (a) is as determined by the first part of equation (9) above.

If desired the data above may now be recalculated using these more accurate values of V and h. As to whether or not such recalculation is necessary will depend on how near the approximate value of the average vertical velocity and the depth to which the detector was lowered in the hole agree with the true values determined by th above method.

Accuracy Required

If the data obtained by this method is to have any real value, great accuracy must be used in measuring the seismic times (t) and the various surface distances (s). The average vertical velocity encountered will vary between 5000 ft/sec for shallow depths to as high as 12,000 ft/sec for greater depths. Therefore an error of 1/1000 second in determining the seismic time will result in an error in the length of the seismic path amounting to from 5 to 12 feet. An error in measuring the surface distances will be the cause of a somewhat greater error in the length of seimic path and an approximately equal error in depth. Surface distances should always be chained. It is also necessary if greatest accuracy is desired to make corrections for the depth to which the charge is planted. Since relatively small charges of dynamite will be used, it will not be necessary to plant the charges at depths greater than about 10 feet in order to keep them from blowing out. In average areas, the vertical velocities will be constant enough in the area through which the seismic waves travel as to not introduce troublesome errors.

Number and Location of Shot Points

The number of shot points required to obtain the necessary data will depend on several factors. 1. Is it desired to map the entire path of the drill or to merely determine the position of the hole at a particular well log depth and the true depth at that point. 2. Is the data to be determined with the utmost accuracy or will approximate values be satisfactory.

Some idea of the direction of the hole may be obtained from two shot points. At least three and preferably more shot points will be required to determine the actual depth and the average vertical velocity which is desirable in order to obtain the best data.

In the text and figures it was assumed that the various shot points were equally spaced on opposite sides of the well. Although this is an ideal arrangement it is not absolutely essential. Reasonably good data may be obtained from two shot points spaced in various directions as long as they are not too close together.

The distance from the shot point to the surface location of the well should be approximately equal to the depth at which the detector is to be lowered. Considerable variation either way is permissible without introducing serious error. The profile to determine the true depth and best value of average vertical velocity should start fairly close to the well and extend to a distance at least as great as the depth to be determined. At least three shot points are desired and five or six would be preferable. The spacing between these shot points is not as critical as the overall distance between the first and last point.

Size of Charges Required

One of the first objections that will be raised against this method is the cost of the dynamite and the damage that might be expected by shooting these shots. The charges required will on the whole be relatively small and if buried will cause no damage visible on the surface. The charges will vary from one or two pounds to perhaps twenty-five pounds.

The fact that only very small charges will be required is abvious when one considers that the shooting distances are relatively short and that the recorded seismic wave travels downward suffering refraction at the boundaries of the various strata, but does not have to be refracted upward from the deeper strata. As a consequence, a much greater amount of energy will be available. However, if the detector is lowered into a dry hole, it is quite possible that some difficulty will be experienced in getting satisfactory records without using excessive charges. Another factor which must be taken into consideration is the amount of disturbance due to work on other wells in the near vicinity. It is unfortunate that the heaviest charges will be required in areas where they are least desired, that is in areas where there is considerable activity.

Instruments

Any electrical type of seismograph is applicable to this particular type of work but better results will be obtained if the instrument is designed for this particular kind of work.

The seismic wave detector or simply called detector (geophone) should be small enough in diameter to be readily inserted into the smallest drill holes to be surveyed. The timing system should be of a particularly satisfactory design. It is almost essential that the time marks on the record be separated by not more than 1/100 parts of a second in order to make it possible to read the records to 1/1000 of a second which

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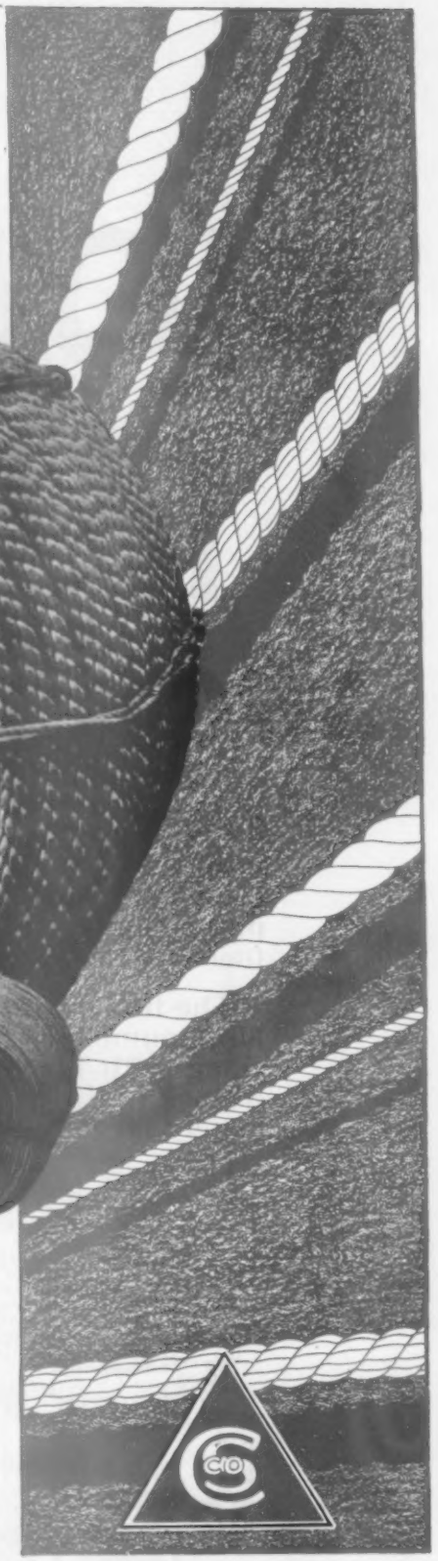

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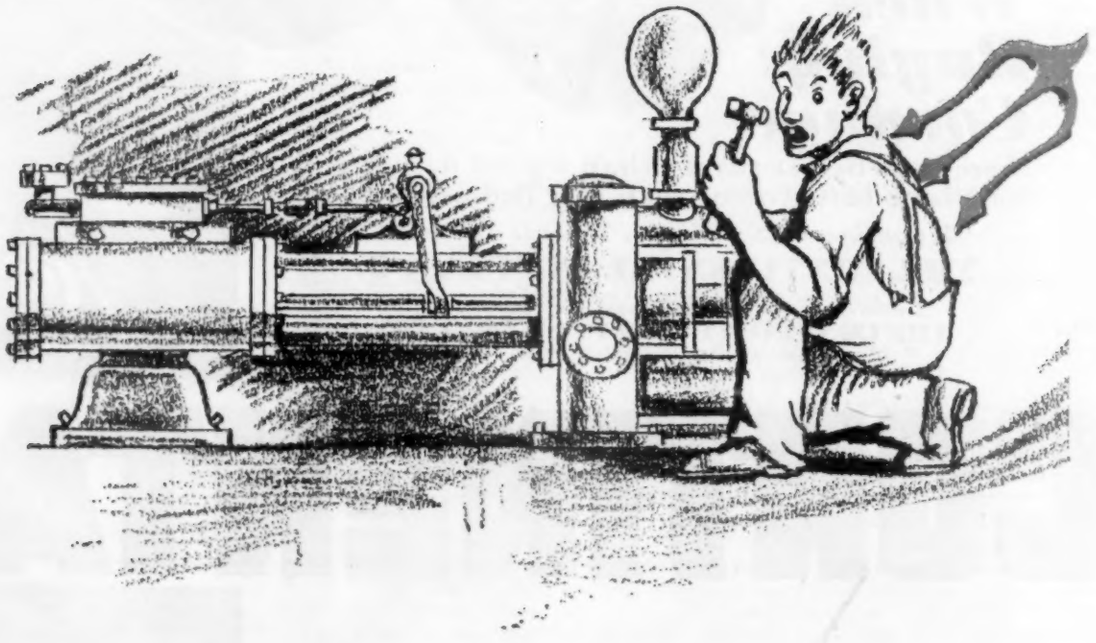
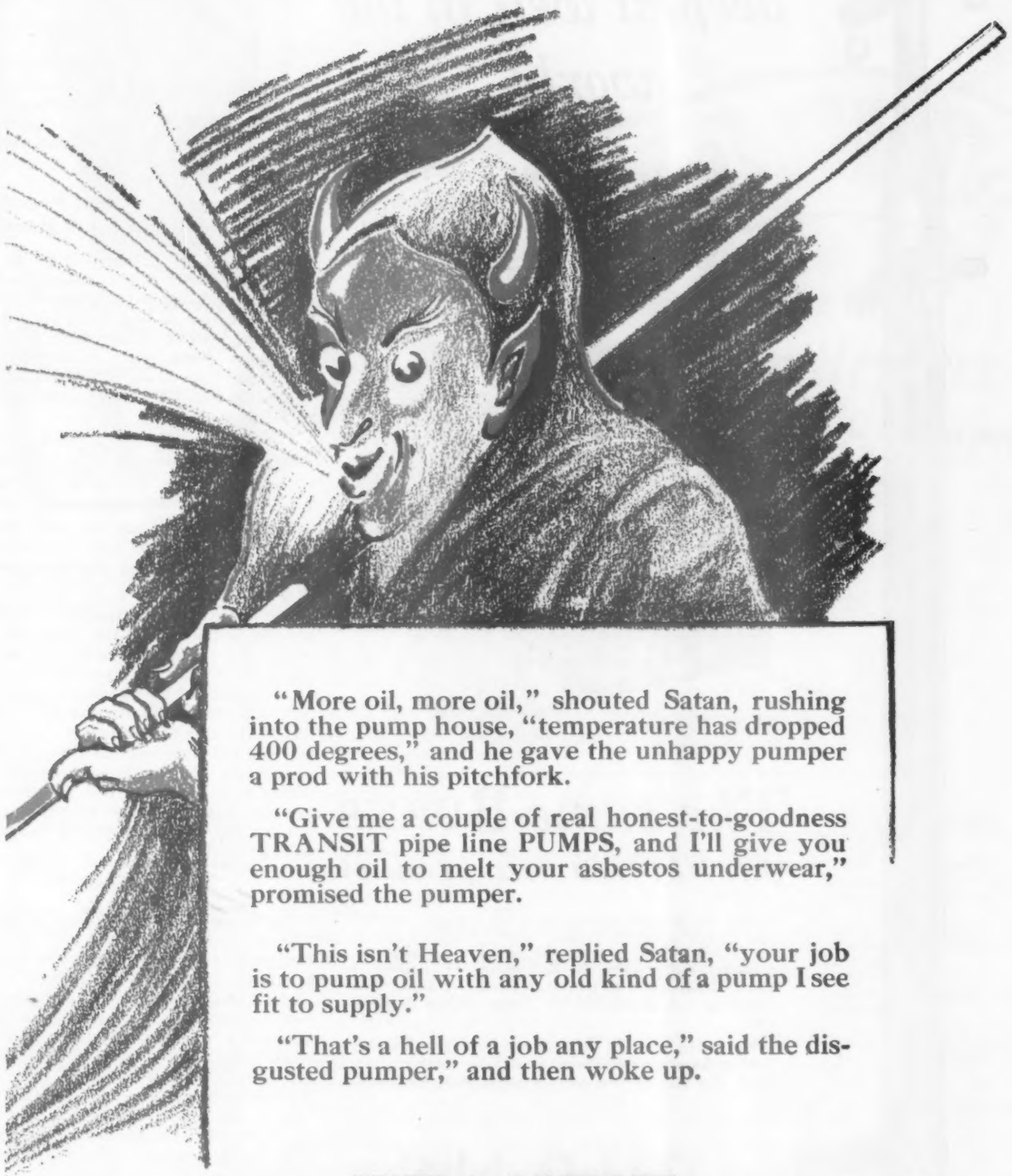
An experienced pipeliner dreamed he died and was consigned to the infernal regions. Being very short on pipe line men, Satan was much pleased, and delegated him to run a mainline pump station. It seems they had just changed fuel--from brimstone to oil.

The first day on the new job was a tough one. No. 1 pump blew up and quit cold; No. 2 limped along with but one side working, and at four o'clock in the afternoon, the pumper was completely fagged out.





"More oil, more oil," shouted Satan, rushing into the pump house, "temperature has dropped 400 degrees," and he gave the unhappy pumper a prod with his pitchfork.

"Give me a couple of real honest-to-goodness TRANSIT pipe line PUMPS, and I'll give you enough oil to melt your asbestos underwear," promised the pumper.

"This isn't Heaven," replied Satan, "your job is to pump oil with any old kind of a pump I see fit to supply."

"That's a hell of a job any place," said the disgusted pumper," and then woke up.

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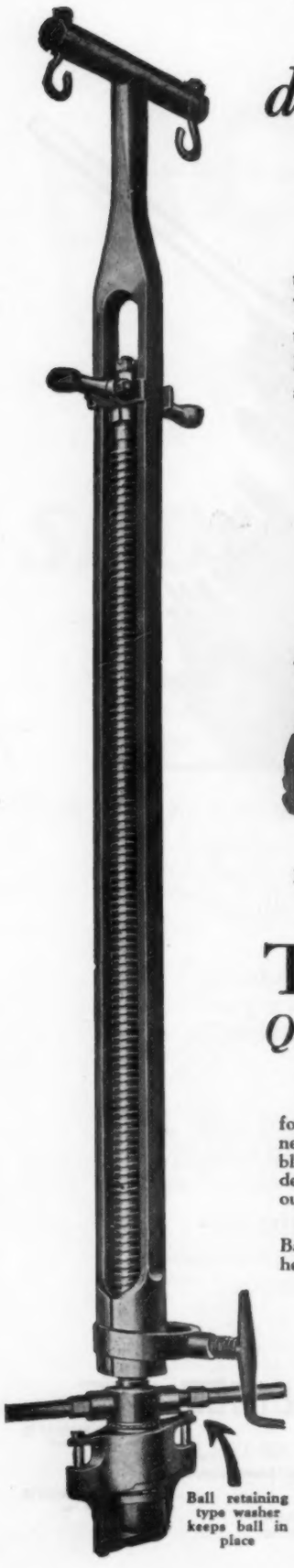

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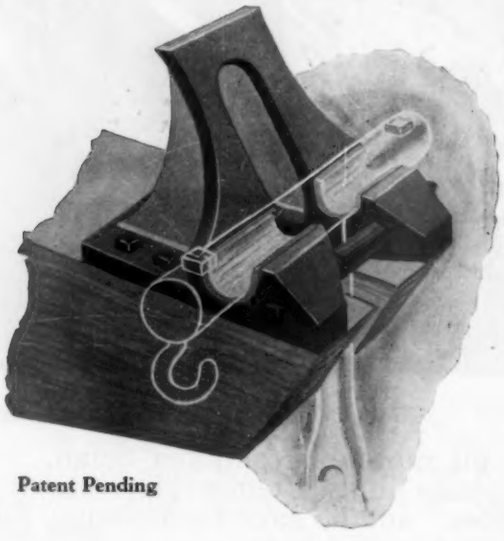

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is desirable. Although a single recorder type of instrument will prove satisfactory, considerable time and expense may be saved by using a multiple detector instrument. In such case two or more detectors may be lowered into the well at different depths and data may be obtained at a similar number of different depths from the same shots. This is particularly advantageous where it is desired to make a complete survey of the hole.

Shot time may be recorded on the record by means of a long shot line or by radio. Even though the distances involved are short, it is quite apparent that the radio will prove more satisfactory as well as cheaper.

Advantages of the Seismic Method of Surveying Crooked Drill Holes

The most important advantage of this method over other methods in use is the fact that it determines the horizontal location of any desired point in the hole, instead of the slope at each successive point which is usually determined. The obvious advantages of the method may be briefly summed up as follows:

Determines location at each depth entirely independent of other positions.

Determines the horizontal and vertical location of any point in the hole.

Determines the position and depth of the bottom of the hole without the necessity of surveying the entire path of the drill.

These particular advantages are extremely important to the geologist or petroleum engineer who is making a sub-surface may be correlating well logs. A crooked hole gives a false value of the depth of a particular formation and in the case of producing sands, the crooked hole may indicate that the well is outside the limits of production where as a matter of fact the surface location is within these limits but the bottom has deviated outside the production limits.

Time Required

Excluding the time required to plant the shots and survey the shot points, the time required to make the necessary data at any given depth will be about 1 to 2 hours. With the single detector instrument, determinations may be made at additional depth in a somewhat lesser time. If multiple detectors are used the time required to make determinations at any number of points in one well is descreased by an amount proportional to the number of detectors used for each shot.

Since it is not necessary to measure the slopes of the hole in order to make a complete survey, it will not be necessary in such work to make determinations at very small intervals of depth. Measurements every 300 to 600 feet would probably suffice for most purposes. On the whole, due to it being unnecessary to make measurements at

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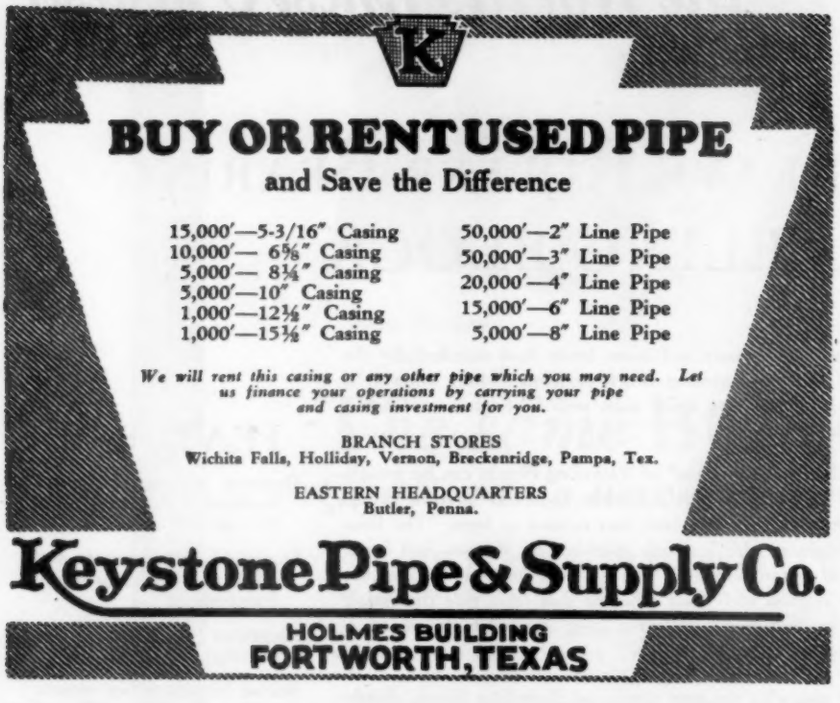
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close intervals, it is quite probable that sufficient data could be taken in less time than would be required for other point-to-point methods.

In a complete survey, unless very great variations in the normal strata are present, it will not be necessary to make determinations of the true depth and average vertical velocity at every point. These values may be determined at several points and plotted as a graph and a curve drawn. The average velocity for intermediate depths may be read from this curve, and a corrected depth determined which will not be in error to any great amount. In the case of very definite thick strata of greatly differing velocity, it may be impossible to draw a smooth curve through the vertical velocity depth graph. The correct curve would be composed of a series of curves or broken lines. In such case, it would be preferable to actually determine the depth and average velocity for each point.

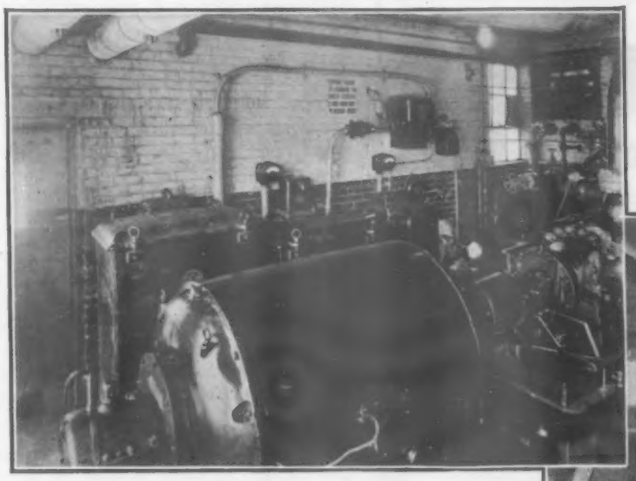
Difficulties Encountered

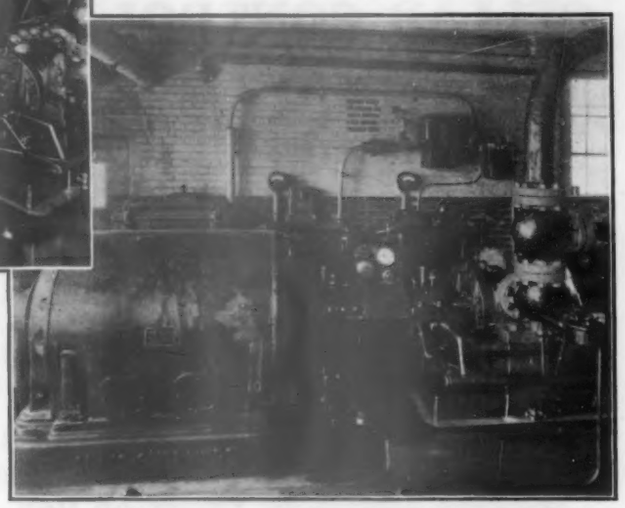
If the well to be surveyed has been cleaned out and is full of water or oil, it presents an ideal condition for this method. The liquid will allow the detector to sink to the desired depth and in addition will aid in transmitting the seismic wave from the outer formations to the detector.

If the well is dry, then the detector must either hang in air or else lay against the side of the hole. In either case, it will be difficult to obtain a satisfactory record with a moderate charge of dynamite. The most practical solution is to fill the hole with water.

If the well is drilling and is therefore full of mud of greater or less consistency, trouble may be experienced in lowering the detector into the hole. In some cases it will be possible to sink the detector by gravity. In others it may be necessary to resort to stronger tactics in lowering through the thick mud.

Another difficulty in the application of the seismic method of surveying crooked drill holes lies in variations in the geologic structure from one side of the well to the other. Vertical variations due to the normal stratification of the beds will be taken care of in the formulas as given. If several beds of widely different velocity are present, one on top of the other, the seismic wave will follow a more complex path, due to the refraction at the boundary of each medium. However, regardless of the complexity of the path, it will be similar for any position around the well. The true depth and actual vertical velocity as determined from the profile, will hold true to a sufficient accuracy under average conditions. If the variations are so great as to cause serious errors, they may be corrected for by calculating the complex path of the various seismic waves from the vertical velocity of the various strata, measured straight down. An average vertical velocity may be computed for the complex path, which when used in the





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EC&M oil-immersed flame-proof starting equipment, which is safe for use in explosive atmosphere such as may exist in this plant, eliminates the problem of fire hazards.

To insure correct starting of this centrifugal pump, in which the load increases as the cube of the speed, EC&M engineers solved the problem by providing a three-step starter. This insures smooth acceleration from starting to synchronism and eliminates line surges. All 2300 volt potential parts, including a transformer which supplies 220 volts for the control circuit, are self-contained and totally oil-immersed in the enclosing tanks. Operating a small master switch, which handles the 220 volt control circuit, energizes the starter which automatically starts, brings up to speed and synchronizes the synchronous motor.

Automatic starting not only eliminates attendants, but if accomplished correctly will cut down power consumption, peak demands and often avoid the necessity for additional equipment.

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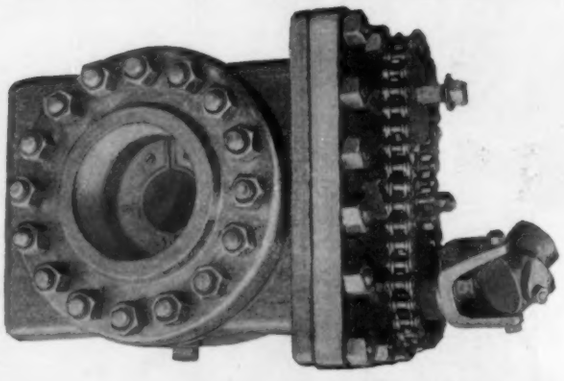

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formulas given will give reliable results.

If, beside the several strata present at different depths, we have a difference in the depth of certain strata on either side of the well, as would be the case if the well were drilled along a fault line, then a different average vertical velocity would apply for each side of the well.

Under this type of structural condition, it is necessary to determine the average vertical velocity on each side of the well and also the actual depth. The two values of depth will give an indication of the accuracy of the measurements by their agreement or amount of disagreement. If these factors are taken into consideration, reliable data may be obtained under such conditions.

Another and more troublesome geologic condition which will seriously affect the data obtained by this method is in the case of a well drilled alongside the steep flank of a salt dome. In this case it will usually be impossible to determine a usable value for the average vertical velocity on the dome side of the well. However, it will be possible to obtain a reasonably accurate survey of the well by choosing two or more shot points in the sector away from the dome by a sufficient amount as to avoid its effect on the average vertical velocity.

There are very complex geologic conditions where the method is entirely impractical, but these are rather uncommon. In the majority of cases, the average vertical velocity will be constant enough for a value determined on one sector to apply to all sectors around that particular well and in some cases around other wells in the nearby vicinity.

Conclusions

In summing up we find that the seismograph offers a satisfactory method for surveying the path of the drill in crooked holes. An explanation of the method of application and the calculation of the data is given herewith. The method possesses the following advantages: 1. It determines the horizontal position of any desired point in the hole relative to any desired reference point on the surface. 2. Each measurement at any desired depth is entirely independent of measurements at other depths. 3. The depth and position of the bottom of the hole may be determined directly without the necessity of making a complete survey of the hole. 4. The initial cost of the instruments is not excessive. 5. The cost of operation of the method is not prohibitively high. 6. It is applicable to an old well where the derrick has been removed because it is not necessary to insert the drill stem into the hole. The disadvantages of the method are as follows: 1. The problem is more difficult in a drilling well due to the difficulty experienced in sinking the detector in the heavy mud used in the hole. 2. It requires shooting small charges of dynamite at numerous points in the vicinity of the well. 3. Special corrective measures must be taken in

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Regan Crown Block

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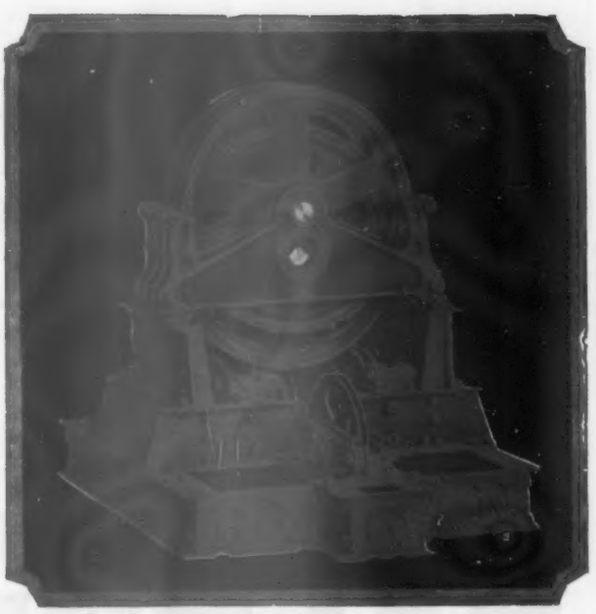

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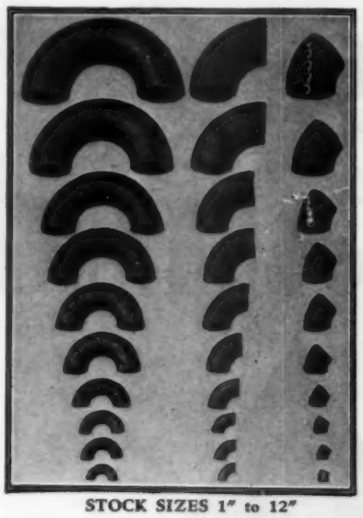

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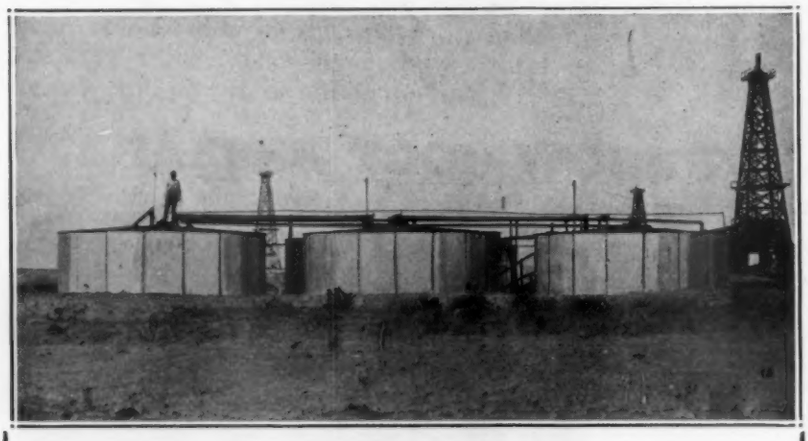

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order to apply the method under complex geologic structural conditions.

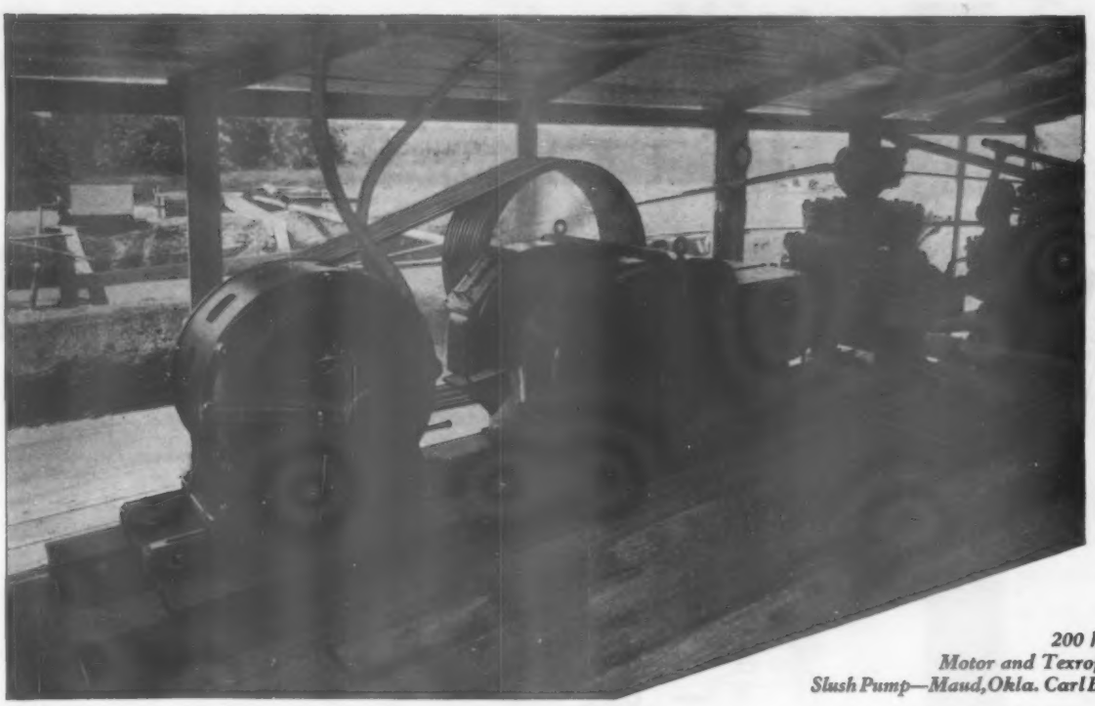
Value of Data Obtained

If data were obtained on a sufficient number of wells, it would be helpful in determining the more important factors in the cause of crooked holes and aid in the development of suitable preventative measures. If measurements are made on wells in a newly developed field, the geologist or petroleum engineer will be better equipped to map the sub-surface structure and the limits of the producing areas with much greater accuracy due to his more accurate values of depth and his more exact horizontal locations of the bottoms of producing wells. In old fields the data obtained will in many cases offer an explanation of apparent inconsistencies between adjacent wells. It will frequently show that differences in depths of particular formations are only apparent differences due to the crookedness of some of the holes. Lack of production in areas that would be expected to produce might frequently be shown due to the difference in the surface locations of the wells considered and the actual locations of the bottom of the holes.

The method would also offer an interesting solution of the problem "Who Gets the Hole" in cases where two wells separated by a considerable distance on the surface, have drilled into the same hole at great depth. If such measurements were made on each of the two wells and the path of the drills determined for each case, then it would be simple to decide, not perhaps which hole was straight, but at least which hole was the least crooked, and also to determine under which lease the point of intersection of the two holes was located.

Aside from the interesting and valuable data that may be obtained relative to the course of drill holes, very valuable and interesting data on average velocities under various conditions will be obtained as a by-product, as it were. This empirical data would be very useful in theoretical and practical petroleum seismology. It would give definite figures for either the confirmation or refutation of various assumptions now employed in the solution of seismic problems. It would undoubtedly result in more accurate formulas and methods for the profiling of petroleum structures.

Casper, Wyo.—No test has yet been possible at the discovery oil well in the Billy Creek gas field, central Johnson County, Wyoming, due to the fact that the cleaning-out job has not been finished. The tools are reported to be 20 feet off bottom, and continued trouble is apparently caused by the tremendous gas pressure which forces the sand up into the casing. The well will be cleaned out and bailed in order that it may be given a chance to flow uninterruptedly; if this is not successful a strainer will be set. It may be a week, or several weeks, before this interesting well is given a thorough test.



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Say you saw it in The OIL WEEKLY

COMPLETIONS FOR PAST WEEK IN U.S. FIELDS

SUMMARIZED REVIEW OF FIELD RESULTS

State—	Completions This Week	Completions Last Week	Producers This Week	Producers Last Week	Gas Wells This Week	Gas Wells Last Week	Failures This Week	Failures Last Week	Initial Prod. This Week	Initial Prod. Last Week
Arkansas	3	3	1	2	2	1	..	..	660	50
California	20	17	18	13	..	..	2	4	23,275	7,270
Illinois	4	4	1	3	..	..	3	1	4	140
Indiana	1	..	1	..	..	..	..	..	5	..
Kansas	49	12	29	6	3	1	17	5	16,790	815
Kentucky	16	22	9	12	2	1	5	9	586	479
Louisiana	14	29	3	9	4	9	7	11	105	1,025
Michigan	13	8	10	5	1	..	2	3	2,675	2,170
Mississippi	9	..	..	..	..		9	..	..	..
New York	12	9	11	8	1	..	..	1	24	42
Ohio	49	30	18	8	16	7	15	15	660	160
Oklahoma	59	74	28	43	4	3	27	28	8,221	23,990
Pennsylvania	68	75	57	64	7	7	4	4	207	293
Tennessee	3	..	2	..	..	..	1	..	60	..
Texas	124	122	71	57	8	7	45	58	58,122	10,365
West Virginia	9	16	2	5	6	6	1	5	50	39
Total	344	421	194	235	46	42	104	144	53,411	46,856
Increase this week	..	..	..	..	4	..	..	..	6,555	..
Decrease this week	77	..	41	..	..	..	40	..	..	..

TEXAS

NORTH TEXAS

Company, Well and Location	Initial Production Bbls.	Depth
ELECTRA—		
W. H. Hammon and Garrett, McCarty 2-E	*	1853
Ryan Consol. Pet. Corp., Waggoner Bros. 1-A	4	1814
HASKELL COUNTY—		
Superior Oil Prod. Co., Reynolds 3	100	1752
K-M-A & IOWA PARK—		
W. H. Hammon et al, Wighley 1	*	1825
Petroleum Inv. Co., Fisher 9-B	*	1873
Riner & Bailey et al, Michie 1-B	425	1790
WILBARGER COUNTY—		
Empire Gas & Fuel Co., Waggoner 5-B	275	2331
Fain-McGaha Oil Corp., Waggoner 9-L	130	2422
King Royalty Co. et al, Waggoner 1	*	1971
C. F. Colp et al, Waggoner 3-G	75	2445
Waggoner 5-G	75	2448
Lewis Prod. Co., Waggoner 9	135	2431
Melat Oil Co., Waggoner 1-B	75	1992
Schucht et al, Waggoner 1	*	2500
Staley-Wynne & Co., Waggoner 2-B	250	1910
Waggoner 2-G	250	1857
E. P. Waggoner et al, Waggoner 1	95	2403
Waggoner Ref. Co., Waggoner 6-K	70	2389
Waggoner 2-L	320	2405
Wilbarger Oil Co., Waggoner 1-C	*	2462
YOUNG COUNTY—		
Bratcher et al, Edwards 6	15	488
Bundy et al, Brown 1	*	1055
Butler & McAllister, Thomas 1	70	1002
Casey et al, Boone 2	*	601
Fultz et al, Scott 1	100	3935
Kimbrell & Lyles, Deyer 2	5	606
Lloyd Oil Corp., Gregg 1	*	525
May-Camp Drlg. Co., Prideaux 1	10	572
Pennell et al, Calvin 5	5	560
Robertson Drlg. Co., Gillmore 1	5	588
Gillmore 3	5	587
Scott & Nance, Goode 1	*	2275
Underwood and Continental Oil Co., Campbell 1	*	937
Walton et al, Prideaux 3	8	502
ARCHER COUNTY—		
Atlantic and Johnson's Prideaux 1	4	738
Brown Oil Co.'s Fee 1	70	1591
Lester Burns' Demoss 1	*	1505
Lewis Franklin's Andrews 1	*	579
Gilliland and Gwynn's Roach 1	*	1304
Humble's Falls County Fee 1	*	1282
Marts & Bevins' McMurty 1	*	901
Texas Co.'s Scott B-1	*	1407
Texas and United Producer's Turbeville 1	*	1603
Wolf & Sons' Huff 1	*	1043
COOKE COUNTY—		
Kewanee Oil & Gas Co.'s Timmis 13-A	80	1250
Timmis 3-B	15	1586
Pacific O. & G. Co.'s Franklin 1	*	1616
MONTAGUE COUNTY—		
Gulf's Willett 1	*	2505
Barbee et al's Hutchinson 1	*	1503

WEST TEXAS

Company, Well and Location	Initial Production Bbls.	Depth
HOWARD COUNTY—		
Amerada Pet. Corp. and Rycade, Roberts 7	350	2947
Roberts 8	145	1320
Comet Pet. Co., Clay 3	60	1825
Cosden & Co., Inc., Roberts 3-C	360	1339
Marland Prod. Co., Clay 3-H	60	1830
Marland-Group One Oil Corp., Settles 7	830	2240
Merrick & Bristow, Roberts 8	1475	2973
Moody Corp. (Superior), Roberts 10-E	225	2648
Schermerhorn Oil Co., Roberts 5-A	200	2612
Witherspoon Oil Co., Kloh 2	825	2318
JONES COUNTY—		
McMan O. & G. Co., Bickley 2	35	2465
MITCHELL COUNTY—		
Magnolia Pet. Co., Mary Foster 6	80	2875
WINKLER COUNTY—		
Humble O. & R. Co., Hendrick 10-C, Lse 2	39,000	2900
Southern Crude and R. A. Westbrook Hendrick 2-F-T-89	150	2972
Hendrick 2-H-T-89	75	2998
Hendrick 4-J-T-89	225	2964

TEXAS PANHANDLE

Company, Well and Location	Initial Production Bbls.	Depth
GRAY COUNTY—		
Empire Gas & Fuel Co., A. R. Clay 1	25	3364
Wilcox O. & G. Co., Worley-Reynolds 31	100	3160
HUTCHINSON COUNTY—		
J. B. Dunigan et al, O. L. Luginbyhl 1	25	3232
MOORE COUNTY—		
McMan O. & G. Co., J. T. Sneed 2	125	3163
Phillips Pet. Co., Sneed-James 4-A	175	3155
MOTLEY COUNTY—		
The Exploration Co., Tillson 1	*	4003
WHEELER COUNTY—		
Fain-McGaha and Humble, J. M. Noel 1	*	2876
Johnson & Co., J. D. Purcell 1	¶6	1945

CENTRAL WEST TEXAS

Company, Well and Location	Initial Production Bbls.	Depth
BROWN COUNTY—		
Campbell et al, Sweet 1	*	1146
Cross Cut Oil Corp., Newton 1	8	1163
J. H. Green et al, Hill 2	*	1270
Humble O. & R. Co., Armstrong 16	50	1220
Kerr et al, Boysen 3	¶½	1747
G. W. McClung et al, Davis 2	*	641
Rosenbaum et al, Newton 1	*	1203
Sheldon et al, Eiland 1	*	929
CALLAHAN COUNTY—		
A. Bremen et al, Hobbs 1	*	1227
Reiter-Foster Oil Corp., Finley 1	*	1050
COLEMAN COUNTY—		
Barbree & Ross, Farmer 1	*	1750
Kirk et al, Coursey 1	*	970
Rex-Tex and Py-Tex Oil Co., Baker 1	¶1¼	1375
Tower & McKenna, Inc., Holms 1	*	2505
EASTLAND COUNTY—		
A. E. Freed et al, Lauderdale 1	*	750
Mays et al, Morton 1	Junked	1773
ERATH COUNTY—		
Associated Prod. Co., Cary 1	¶7	3282
Nelson Oil Synd., Finch 3	*	3877
PALO PINTO COUNTY—		
Conway Bros. et al, Hinkson 1	¶¼	3802
SHACKELFORD COUNTY—		
N. E. Croon et al, Goodwin-Walker 1	*	2005
Humphreys Bros., Inc., Flippin 1		1050
Ohio-Texas Oil Co., Matthews 2-C	120	1102

TEXAS GULF COAST

Company, Well and Location	Initial Production Bbls.	Depth
BARBERS HILL—		
Joe Bashara's Tarbutton 1	750	5236
BATSON—		
Deutser Oil Co.'s Trustee 20	15	1130
BIG CREEK—		
Gulf's T. W. Davis 52	280	3840
BLUE RIDGE—		
Navarro Oil Co.'s Robinson B-6	1000	4050
HULL—		
Republic Prod. Co.'s Dolbear 103, owdd	700	2570
HUMBLE—		
The Texas Co.'s House 22	600	5057
PIERCE JUNCTION—		
Rio Bravo Oil Co.'s Settegast A-12	2000	4640
Settegast A-13	1500	3660
RACCOON BEND—		
Humble O&R Co.'s Hardy 3	117	3216
Urban 3	500	3360
SOUTH LIBERTY—		
Sun Oil Co.'s Mitchell 40	*	3595
Mitchell 41	50	2140
Fort Bend Oil Co.'s Reviere 3	50	2305
REFUGIO—		
Houston Oil Co.'s Rooke 10 (gas well deepened	1000	3686
Houston Gulf Gas Co.'s Fannie Heard 7	¶100	3679

NORTH LOUISIANA

Company, Well and Location	Initial Production Bbls.	Depth
CADDO PARISH—		
C. H. French, Muslow 5, 31-21-15	25	1695
DESOTO PARISH—		
Benedum & Trees, Nicholson 1, 2-15-14	*	2973
MOREHOUSE PARISH—		
Industrial Gas Co., Crowders-Moore 1, 31-21-5e	¶3	2200
Southern Carbon Co., Miles 2, 1-20-41	¶1	2202
LASALLE PARISH—		
Ark. Fuel Oil Co., Urania B-11, 17-10-2e	sw	1459
RICHLAND PARISH—		
Magnolia Pet. Co., C. M. Noble 1, 36-16-5e	¶29	2400
SABINE PARISH—		
L. M. Moffitt, Tr (formerly Luke Case Tr), Boatright 1, 3-10-13	¶2½	3069
WEBSTER PARISH—		
J. W. Clark, Tr., Mayfield 2, 20-23-9	40	2771
Harry Morris, Lewis 1, 15-23-9	*	2902

LOUISIANA GULF COAST

Company, Well and Location	Initial Production Bbls.	Depth
EDGERLY—		
Rex Pet. Co.'s Hunter 9	*	3785
Wilson-Broach's Wilson 2	*	3120

EAST TEXAS

Company, Well and Location	Initial Production Bbls.	Depth
MARION COUNTY—		
Trimount Pet. Co., Mebane-Stiles A-1, Gupton sur	15	2365
PANOLA COUNTY—		
Natural Gas Prod. Co., Floyd 1, B. C. Jordan sur	¶4	939
Floyd 2, B. C. Jordan sur	¶5	934

ARKANSAS

Company, Well and Location	Initial Production Bbls.	Depth
Ark. Nat. Gas Corp., Morris 1, 7-17-13	660	3037

OKLAHOMA

Company, Well and Location	Initial Production Bbls.	Depth
CARTER COUNTY—		
Schermerhorn et al, Jolliff 2, nw ne ne nw, 24-5s-1e	*	4536
COTTON COUNTY—		
Cullum & Jenkins, Smith 4, se sw se, 34-1s-10w	*	2204
CREEK COUNTY—		
Dixie Oil Co., Dickinson 6, se, 7-19-9e	¶2½	2163
Devonian Oil Co., Brown 2, cel w½ se nw, 4-18-12e	10	2185
Winemiller et al, Colbert 1a, sw se, 9-19-7e	*	2861
Smith & Steinberger, Asbury 1, nw ne se, 8-19-7e	*	3503
Schermerhorn, Parker 1, se nw nw, 14-18-10e	*	3175
Red Bank Oil Co., Page 1a, sw se ne, 34-16-10e	*	3135
GARVIN COUNTY—		
Magnolia, Pierce 1, ne sw nw, 14-1n-3w	10	1600
HUGHES COUNTY—		
Furhman Pet. Co., & Newman, Busk 2, c sw sw, 21-9-10e	¶8½	2662
Westheimer & Daube, Patterson 2, nw, 29-5-8e	135	2578
Sunray, Nitchey 1, sw nw ne, 19-5-8e	490	2623
JEFFERSON COUNTY—		
Humble, Seay 2, ne nw nw ne, 3-7s-5w	35	1223
LINCOLN COUNTY—		
Mid Co, Tipton 1, se ne nw, 13-15-5e	*	4468
MUSKOGEE COUNTY—		
Bryan Pet. Co., Simmons 1a, sw nw sw sw, 3-15-15e	25	1579
J. A. Routt, Timberlake 1, sw se se, 11-14-19e	*	1090
J. A. Evans, Hibb 1, nw sw, 11-14-19e	*	492
Thompson 1, (owdd) sw nw sw, 2-14-19e	*	1003
Colton & Lester, Pettitt 1, sw nw sw, 25-12-19e	*	1170
OKFUSKEE COUNTY—		
Atlantic Oil Prod. Co., Micco 2, sw, 12-10-11e	5	2084
B. & B. Drlg. Co., Morran 1, nw se, 4-11-11e	*	3825
OKMULGEE COUNTY—		
Moffett et al, Rogers 1, ne nw nw, 10-11-12e	¶3½	2767
OSAGE COUNTY—		
Stoner Bros. No. 3, csl n½ nw, 31-24-9e	5	2143
McCune & Wormser No. 12, se nw, 15-24-8e	10	495
H. H. Mundy et al, No. 1, ne se, 10-21-8e	6	1760
I. T. I. O. No. 1, ne se, 26-26-8e	*	1704
Okla. Nat'l. Gas Co. No. 1674, sw nw, 13-21-11e	*	2224
H. H. Mundy et al, No. 1, sw sw ne, 4-20-9e	*	527
PAWNEE COUNTY—		
Washoma O. & G. Co., Buffalo 1, se nw, 33-22-5e	10	3146
POTTAWATOMIE COUNTY—		
Texas, Calvin 7, sw se se, 7-8-5e	265	4219
Pure, Urbansky 1, nw sw ne, 19-8-5e	75	4355
Phillips, Hudson 5, ne nw nw, 19-8-5e	225	4223
Skelly & Margay, Linger 4, se nw ne, 18-8-5e	200	4129
W. B. Pine, Linger 1, sw ne, 18-8-5e	230	4140
Magnolia, Billington 4, nw se nw, 8-8-5e	45	4503
Texas, Calvin 2, nw se, 7-8-5e	600	4311
Sinclair, Nesbit 6, ne nw, 18-7-5e	440	4122
Magnolia, Brandenburg 2, ne nw nw, 18-7-5e	600	4158
Sinclair, Brandenburg 2, se sw, 7-7-5e	515	4112
Sinclair, Blandin 1, (owdd) nw sw, 24-7-4e	30	4162
Mid Co, Shelton 2, nw ne ne, 18-8-5e	*	4507
Amerada, Fehlig 3, nw ne, 7-8-5e	*	4155
Gypsy, Hartman 1, ne nw ne, 12-8-4e	*	4635
Continental, Neghnquit, se nw, 19-7-4e (owdd)	*	4532
SEMINOLE COUNTY—		
Carter, Coker 1, se sw, 2-8-5e	3735	4297
Marland, Maines 3, se sw, 7-8-6e	60	4429
Gypsy, Doser 3, sw ne ne, 7-8-6e	295	4251
Magnolia, Glass 1, sw ne ne, 26-7-6e	¶25	3136
Burke Greis Oil Co., Cyrus 1, se ne nw, 13-9-7e	*	4263
Marland, Lacke 1, se ne sw, 32-8-7e	*	4590
Carter, Factor 1, se nw, 26-7-6e	*	4206
STEPHENS COUNTY—		
Harris & McNeal, McCullom 1, nw sw ne, 24-1s-4w	25	3058
American Pipe Line Co., Nigh 4, sw se nw, 34-1s-8wf	100	1861
Magnolia, Peck 3, ne sw ne, 13-2s-8w	40	1468
Stahl & Burris, Jefferson 1, se ne nw, 2-1n-7w	*	3012
Magnolia, Stephens 10, nw ne nw, 33-1s-8w	*	2720
Davidson et al, Fee 1, se nw se, 5-2s-4w	*	1375
Pace et al, Cooper 1, cwl sw ne, 16-2s-7w	*	1931
WAGONER COUNTY—		
Okla. Nat'l. Gas Co., Cinda 4, nw ne nw sw	*	830

KANSAS

Company, Well and Location	Initial Production Bbls.	Depth
Barber Oil Co., Blunk 1, c ne nw, 20-34-13w	*	5395
BARTON COUNTY—		
Midwest Exp. Co., Korst 34, sw se sw, 11-16-15w	*	3730
BUTLER COUNTY—		
Patten et al, Marshall 1, nw se sw, 11-27-5e	50	2720
Empire, Sherrock 7, se ne sw, 27-27-5e	200	2752
Martle Oil & Gas Co., Morgan 1, se sw, 12-27-5e	*	3156
COFFEY COUNTY—		
Spencer & Derby Oil Co., Crandall 1, nw sw, 14-23-15e	*	1555
COWLEY COUNTY—		
Trees Oil Co., Mauser 1, sw nw ne, 12-32-6e	¶1¼	2451
Broadwater Drlg. Co., Plummer 1, se ne se, 17-30-3e	*	3490
White Eagle et al, Franks 1, nw se, 25-31-4e	*	3428
Dewey & Barnsdall, Smith 1, se sw ne, 36-31-4e	*	3458
Lewis Prod. Co., Sitton 1, ne se nw, 30-31-6e	*	3040
GREENWOOD COUNTY—		
Empire, Edwards 12, se nw, 21-23-11e	375	1974
HARVEY COUNTY—		
Garland et al, Cox 1, ne, 27-24-1w	*	3517
MARION COUNTY—		
Courtney Davis, Rampel 1, sw nw, 7-19-3e	275	2815
L. E. Beck, Methodist Church 1, nw ne ne ne, 22-17-4e	30	2447
RUSSELL COUNTY—		
Midwest Exp. Co., Dortland 22, nw se se, 5-14-15w	30	3096
Baxter 22, nw se sw, 32-13-15w	75	3074
Empire, Popcyn, ne nw se, 31-13-15w	100	3335
Midwest Exp. Co., Austin 31, sw, 30-12-15w	150	3089
SEDGEWICK COUNTY—		
Davis & Skelly et al, Wilson 5, ne se ne, 1-26-12	1120	3393
Bu Vi Bar et al, Shawver 1, ne nw, 7-26-1e	1800	3365
White Eagle, Baylor 1, sw nw nw, 6-26-1e	350	3393
Vickers Pet. Co., Nissen 2, sw ne sw, 6-26-1e	750	3384
Nissen 1, sw ne sw, 6-26-1e	740	3382
Tidal, Scherger 1, se sw nw, 6-26-1e	275	3378
Pyle & Sutter, Caldwell 2, ne nw se sw, 6-26-1e	1045	3378
Pyle & Sutter, Caldwell 1, nw se sw, 6-26-1e	1000	3384
Montour Oil Co., Lavendar 1, cwl e½ se sw, 6-26-1e	1200	3391
Derby Oil Co., Gorman 1, cwl n½ nw sw, 6-26-1e	950	3374
Bu Vi Bar, Goodrich 2, se ne sw, 6-26-1e	270	3387
Branch 2, se sw se sw, 6-26-1e	1125	3378
Allison & Fitzwilliams, Kelly 1, sw nw nw, 6-26-1e	145	3385
Stearns & Stretter, Woodman 1, sw nw ne, 7-26-1	1400	3383
Bu Vi Bar et al, Shawver 2, se ne nw, 7-26-1e	1290	3376
Byers 1, nw sw ne, 7-26-1e	340	3375
Phillips & Prairie, Pfeifer 1, sw ne, 6-26-1e	200	3390
Mary Jane Oil Co., Fitch 2, ne se sw, 6-26-1e	1225	3392
Bu Vi Bar, Bright "A" 1, nw, 6-26-1e	100	3385
Alladin Pet. Corp. & Prairie, Smyser 2, se sw se, 36-25-1w	180	3400
Shawver et al, Reeves 1, se sw se, 19-28-1e	*	3633
Barnsdall, Faber 1, sw nw, 6-27-1w	*	3950
Jones et al, Brown 1, nw, 6-26-1e	*	3630
H. H. Patton et al, Burnham 1, ne, 22-25-1e	*	3580
Shawver & Dickey, Kehl 1, sw nw sw, 31-25-1e	*	2710
Geo. L. Miller et al, Caldwell 1, nw sw, 31-25-1e	*	3457
Derby Oil Co., Ramsey 1, sw nw sw, 31-25-1e	*	3425
Brandebury & Hinkle, Whiting 1, nw, 31-25-1e	*	2650
STEVENS COUNTY—		
McKenna et al, Hamm 1, se ne, 10-33-38w	¶8	2636
SUMNER COUNTY—		
Morgan Carey et al, White 1, sw se sw, 16-35-2e	¶5	3372

CALIFORNIA

Company, Well and Location	Initial Production Bbls.	Depth
ATHENS-ROSECRANS—		
Barnsdall Oil Co., Rosecrans 5-A	100	5275
ELWOOD—		
Barnsdall Oil Co.—Rio Grande Oil Co., Bell 4	3500	3430
LONG BEACH—		
Dabney-Johnson Oil Corp., No. 25	1600	6610
E. L. Doheny, Nelson 2	1500	7115
A. T. Jergkins' Syndicate No. 25	425	7810
Macmillan Pet. Corp., Ifland 2	600	5880
Richfield Oil Co., Meador 2	2250	7020
Shell Oil Co., Pickler 11	600	6455
MT. POSO—		
The Ohio Oil Co., Midway-Premier 1, 32-27-27	150	2805
RINCON—		
Chanslor-Canfield Midway Oil Co., Hobson B-4	200	3210
SANTA FE SPRINGS—		
General Pet. Corp., S. F. 137-B	1300	5130
S. F. 137-C	3200	5910
The Texas Co., Standlee 5	2500	5888
SEAL BEACH—		
Associated Oil Co., Bryant 12	1550	5650
Marland Oil Co., Bixby 17	1400	5710
Standard Oil Co., San Gabriel 5	1600	4955
VENTURA—		
Pacific Western Oil Co., Orton 9	1750	7020
WHEELER RIDGE—		
Standard Oil Co., No. 26, 27-11-30	50	4475

EASTERN STATES

NORTHWESTERN OHIO

Company, Well and Location	Initial Production Bbls.	Depth
HANCOCK COUNTY—		
William G. Leiber, Leiber 4	25	1369
MERCER COUNTY—		
W. B. Lawrence Jr., Purdy 1	2	1160

INDIANA

Company, Well and Location	Initial Production Bbls.	Depth
SULLIVAN COUNTY—		
G. W. Buff & Co., Buff 1	5	791

ILLINOIS

Company, Well and Location	Initial Production Bbls.	Depth
WABASH COUNTY—		
Highland Oil & Gas Co., Bailey 1	*	1585
Risley & Co., Harrington Heirs 1	*	1589
CRAWFORD COUNTY—		
Walter Squires & Co., Kraft 5	4	1000
LAWRENCE COUNTY—		
Smith & Co., Thompson 1	*	1685

(Continued on page 86)

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Houston, Texas

A. F. Keck & Co.
Butler, Pa.

Acme Tool Co.,
Breckenridge, Texas

WICKWIRE SPENCER UNIFORM WIRE ROPE

(Continued from page 84)

MICHIGAN

Company, Well and Location	Initial Production Bbls.	Depth
MUSGEGON COUNTY—		
Globe Oil Co., Lunctra 1	800	2034
Natural Gas & Oil Co., Giles 1	500	2035
Carl Damm, Damm 2	500	2052
Eureka Oil Co., Buteau 1	¶½-100	1680
Dixie Oil Co., McLaughlin 1	350	2051
McLaughlin 2	100	2060
Figge 8	25	1650
J. V. Howard, Davacool 1	250	2068
The Sun Oil Co., Young 1	25	....
Continental Motors Corp., Fee 12	25	....
Muskegon Oil Corp., Heinz 5	¶5	2040
MIDLAND COUNTY—		
The Pure Oil Co., Shirts 1	*	3580
Consumers Power Co. 1	*	3597

TENNESSEE

CLAY COUNTY—		
Groff & Co., Meadows & Co. 1	30	....
Williams & Co., Maynord 1	30	....
MADISON COUNTY—		
Semete Oil Co., Howard 1	*	....

MISSISSIPPI

WASHINGTON COUNTY—		
Alhambra Oil Co., Williams 1	*	....
ITAWAMBA COUNTY—		
Itawamba Oil & Gas Co., Evans 1	*	....
STONE COUNTY—		
Magic City Oil Co., Magic City 1	*	....
RANKIN COUNTY—		
D'Lo Development Co., Finkbine 1	*	....
CLARK COUNTY—		
The Pure Oil Co., Stevenson 1	*	....
LEE COUNTY—		
Lee County Petroleum Co., Hickman 1	*	....
CALHOUN COUNTY—		
Calhoun City Co., City Property 1	*	....
SIMPSON COUNTY—		
Graves, Jones & Co., Kendall 1	*	....
JACKSON COUNTY—		
J. W. Zink & Co., Delamorton 1	*	....

PENNSYLVANIA

BRADFORD FIELD—		
South Penn Oil Co., Bingham 533, tr 106	3	....
Bingham 576, tr 17	3	....
Bingham 405, tr 4	3	....
Dent 123,	5	....
Fee 80	7	....
Bingham-Satterfield 152	2	....
Smith 182	2	....
Taylor 34	2	....
Whipple 22	4	....
Kinzue 04	pressure	....
Hazlewood Oil Co., Lot 23, tr R-1	2	....
Lot 23, tr R-2	2	....
Lot 23, tr R-3	2	....
Lot 23, tr R-4	2	....
Fee 20	3	....
Associated Producers Co., Bingham 568, tr 16	2	....
Wood & Evans, Huntington 7	3	....
Huntington 8	3	....
G. A. Simpson, Simpson 1	5	....
Simpson 2	5	....
Simpson 3	5	....
C. E. Potter, Potter 10	4	....
Irvine 9	2	....
McKean County Trust Co., Bingham 386, tr 52	3	....
Bingham 386, tr 53	3	....
Bingham 386, tr 54	3	....
Sunny Oil Co., Sunny 1	7	....
Wingrove & Tapp, Borden 2	3	....
Forest Petroleum Corp. Fee (eight wells	16	....
Fee (eleven wells)	pressure	....
Dana & Dana, Dana 17	5	....
B. Devlin, Devlin 10	5	....
Dallas Oil Co., Ekas 6	7	....
M. C. Reidy, Reidy 3	3	....
J. C. McCandless, Burns & Co. 6	4	....
D. T. Andrus & Co., Bingham 19	7	....
G. W. Crooks Estate, Franchot 4	3	....
L. G. Dana, Dana 5	5	....
C. H. Williams, Moore 6	4	....
T. H. Kevin Jr., Kapp 11	4	....
A. Stover, Duke 17	4	....
Burdick & Store, Potter 3	4	....
L. F. Kinley, Mantz 5	4	....
Penn-Bradford Oil Co., Devlin 2	5	....
BUTLER COUNTY—		
Freeman & Beals, Montgomery 1	*	....
CENTER-MIDDLE FIELD—		
J. G. Sheldon, Wardwell 1	2	....
Nelson & Johnson, McWilliams 1	2	....
CLARION COUNTY—		
George Stubler, Stubler Heirs 9	2	....
Citizens Trust Co., Whitehill 13	2	....
F. C. Diemer, Meherten 5	3	....
S. C. Jordon & Co., Brown & Co. 4	3	....
N. T. Shorts & Co., Beichner 1	*	....
Whitehill Bros., Whitehill 1	*	....
Roy Edinger, Edinger 4	2	....
VENANGO COUNTY—		
Turner & Sons, McMullen 9	2	....
Fryburg Motor Co., McLaughlin 3	¶1	....
S. Y. Ramage, Stiles 82	2	....
Stiles 83	2	....
Corbett & White, Corbett & Co. 12	2	....
South Penn Oil Co., Melford 26	2	....
D. Watson & Co., Hoffman 19	2	....
J. E. Keverlin, Schwab 8	2	....
GREENE COUNTY—		
Natural Gas Co., of West Virginia, Johnson 1	¶2	....
Manufacturers Light & Heat Co., Owens 4	*	....
Milliken & Hodkinson, Moore 1	¶1½	....
ALLEGHENY COUNTY—		
Verona Tool Works, Fee 1	¶1¼	....
Herman Keck, Schafer 2	5	....
WASHINGTON COUNTY—		
R. C. Mason & Co., Cook 1	4	....

NEW YORK

ALLEGANY COUNTY—		
C. M. Lippert & Co., Lippert 12	2	....
Lippert 13	2	....
Lippert 14	2	....
Forest Oil Co., Fee 17	2	....
J. Meridian & Co., Meridian 1	3	....
Bartoo & Childs, Childs 1	3	....
G. W. Bartell & Co., Bartell 1	2	....
L. W. Shaner & Co., Shaner 7	2	....
First National Bank of Olean, Bartell 13	2	....
F. L. Williams, Williams 1	2	....
Karl-Weller Oil Corp., Karl & Co. 1	pressure	....
Fairview Oil Co., Fairview 1	2	....

WEST VIRGINIA

CLAY COUNTY—		
Virginian Gasoline & Oil Co., Reed 6	30	....
Brown, Swan & Co. 17	20	....
LEWIS COUNTY—		
Standard Gas Co. ,Dennison 1	¶2	4205
Angler & Potter, Bennett 2	¶2	4155
HARRISON COUNTY—		
Salem Concrete Co., Williams 1	¶¼	....
Burk & Dennison, Dennison 1	¶¼	....
ROANE COUNTY—		
Hope Construction & Refg. Co., Craig-Bartlett 2	¶¼	....

Electrical Association Re-Elects

Tulsa.—All officers of the Petroleum Industry-Electrical Association were re-elected at the convention just ended in Tulsa. The 1930 convention will be held at Dallas.

Officers of the association are F. J. McMahon, vice-president of the Texas Pipe Line Company, Houston, president; F. S. Leonard, Shell Pipe Line Company, St. Louis, first vice-president; C. E. Foster, Oklahoma Pipe Line Company, Muskogee, second vice-president; H. E. Browne, Prairie Pipe Line Company, Independence, secretary; and W. T. Bulla, Empire Pipe Line Company, Bartlesville, treasurer.

The association was formed in 1928 at Fort Worth and is made up of more than 15 active pipe line and oil and gas transportation or transmission companies. The membership represents more than 150,000 miles of transportation communication lines.

Company, Well and Location	Initial Production Bbls.	Depth
LINCOLN COUNTY—		
Harvard Gas Co., Standard Fuel Gas Co. 1	¶1¼	....
MARSHALL COUNTY—		
Carnegie Natural Gas Co., Conway 7	*	....

KENTUCKY

HANCOCK COUNTY—		
Wentworth Oil Co., Burdette 1	¶1½	....
PIKE COUNTY—		
Unknown parties, Buckeye Creek 1	¶1½	2600
ALLEN COUNTY—		
I. J. Tapp & Co., Hood 2	1	260
DAVIESS COUNTY—		
Frognite Oil Co., Trodgen 3	100	....
Raydure, Battan & Co., Salmon 2	40	....
L. C. Young & Co., Ray 1	*	....
Wade, Moore & Co., Boarman 1	*	....
McMahon & Combs, Stinnett 1	*	....
OHIO COUNTY—		
Hupp, Duff & Co., Bartlett 4	150	....
Trodgen 4	150	....
Smith & Fisher, Thomas 2	15	409
Wood Oil Co., Inc., Smith 9	30	462
Ferguson 4	*	465
Snowden-McSweeney Co., Maden 2	*	465
James C. Ellis, Daniles 13	10	....
Globe Oil Co., Gossett Lane 1	10	....

SOUTHEASTERN OHIO

MONROE COUNTY—		
Shay, McMullen, Edwards 2	¶¼	1932
Stephens Bros., Stephans 5	¶¼	1574
English Bros. Oil & Gas Co., English 2	20	1672
MORGAN COUNTY—		
Ohio Fuel Gas Co., Strode 1	¶½	1620
Frisby 1	¶¾	1636
Ellis 1	*	1490
NOBLE COUNTY—		
C. E. Stephans & Co., Rohrer 5	¶¼	800
Blake & Addis, Kinnin 5	*	1138
WASHINGTON COUNTY—		
C. W. Schramm & Co., Feller 1	3	....

CENTRAL OHIO

PERRY COUNTY—		
The Pure Oil Co., Turner 2	105	....
Hope Construction & Refg. Co., McCue 4	75	....
William Cline & Co., Burley-Winters 6	5	....
Bell & Scholl, Brummage 1	*	3510
LICKING COUNTY—		
Hope Construction & Refg. Co., Coomes 2	70	3131
The Pure Oil Co., Loughman 2	32	3040
Hulse & Kundtz, Moran 1	*	815
Rymilper Oil Co., Dutro 1	*	....
MEIGS COUNTY—		
Penn Grit Oil Co., Capehart 1	3	1700
Ohio Fuel Gas Co., State of Ohio 3	2	1699
Tyree & Co., Carnahan 6	*	593
Eberhart 1	2	1839
SUMMITT COUNTY—		
F. A. Brendall & Co., Kepler 1	30	....
East Ohio Gas Co., Helmstetter 1	¶1	....
Hatcher 1	*	3900
Cammeron & Co., Graber Allottment 1	*	4250
ASHLAND COUNTY—		
The Logan Gas Co., Cowan 2	¶1¼	....
Barnhill 1	¶1	....
Jones & Co., Winbigler 5	*	....
ATHENS COUNTY—		
Ohio Fuel Gas Co., Sunday Creek Coal Co. 67	¶¼	3948
Snodgrass 1	*	1708
Bailey Oil & Gas Co., Wells 3	¶¼	1869
WAYNE COUNTY—		
Ohio Fuel Gas Co., Kline 1	*	....
The Kemrow Co., Fry 7	¶½	....
Garn-Woodward Oil Co., Esselburn 2	*	400
MUSKINGUM COUNTY—		
W. Hunter Athe, Allied Coal Co. 1	¶¼	4067
Ohio Fuel Gas Co., Allen 1	*	4024
Mid-East Oil Co., Knight 2	*	4005
BELMONT COUNTY—		
The Preston Oil Co., Feller 7	7	1685
Frank Stranges, Newlin 2	*	2513
LORAIN COUNTY—		
Ohio Fuel Gas Co., Clark 1	¶1¼	....
Nobles 2	¶¼	....
HOCKING COUNTY—		
The Preston Oil Co., Miller 4	196	2831
Gordon Oil Co., Meldrin 4	35	2913
Stone 9	38	2922
MEDINA COUNTY—		
Harmon & George, Wood 2	¶2	2897
VINTON COUNTY—		
Townsend & Co., Huston 2	¶1½	....

PERMITS GRANTED FOR NEW WELLS

LOUISIANA

ACADIA PARISH — *Abshire-Bolyard Oil Co., Jennings, La., Jennings-Heywood 5, 41-9s-2w, 242 ft e and 288 ft s of nw cor of Sec.

BOSSIER PARISH—Triangle Drilling Co., 301 Ardis Bldg., Shreveport, La., J. H. Fullilove Jr, 1, 11-17n-12w, 660 ft s and 660 ft e of center of Section. Jones Chemical Co., McDade, La., McDade 1, 31-16n-11w, 45 ft s and 140 ft w of ne cor of sw¼ of se¼.

CADDO PARISH — Dixie Oil Co., Inc., Slattery Bldg., Shreveport, La., Dillon 97, 13-21n-15w, 2450 ft s and 965 ft e of nw cor of Section.

CALCASIEU PARISH—The Union Sulphur Co., Sulphur, La., Fee 745, 29-9s-10w, 111 ft s and 307 ft w of center of section.

EVANGELINE PARISH — The Texas Co. & Evangeline Co., Ricou-Brewster Bldg., Shreveport, La., Anna Belle Guillory 1, 36-3s-1w, 1055 ft s and 618 ft e of nw cor of ne¼.

OUACHITA PARISH — Southern Carbon Co., Monroe, La., Fee 53, 23-19w, 4e, 1320 ft n and 660 ft w of se cor of Section.

SABINE PARISH—Arkansas Fuel Oil Co., Ardis Bldg., Shreveport, La., Logan Oil Co. 13, 32-10n-12w, 2230 ft s and 330 ft w of ne cor. of Section. Mr. R. L. Gay, Tr., Zwolle, La., Bowman-Hicks 3, 14-7n-14w, 400 ft s and 200 ft w of ne cor, sw¼ of se¼; Long Bell Lbr. Co. 1, 26-8n-14w, 200 ft s and 200 ft e of nw cor. ne¼ of nw¼.

TERREBONNE PARISH—*The Texas Co., Ricou-Brewster Bldg., Shreveport, La., La. Land and Exploration Co. 1, 23-21s-16e, 1725 ft s and 925 ft w of ne cor. of Section.

UNION PARISH—Natural Gas Prod. Co., Bastrop, La., G. W. Haile et al 2, 14-21n-3e, 3135 ft s and 1980 ft w of ne cor. of Section.

*Amended Permit.

TEXAS

ARCHER COUNTY—Moran Drilling Co., Wichita Falls, S. J. Scott 3, BS&F sur, 150 ft s of center of n line. Beasley Prod. Co., Electra, Abercrombie 3, B 41, Harris sur, 150 ft from s and e lines. Lea & Daniel, Wichita Falls, Williams 7, J. Hand sur. L. T. Burns, Wichita Falls, Portwood 1, 2411 TE&L sur, 150 ft e and 10 ft n of sw cor. of sw¼ of sw¼. Texas Co., Wichita Falls, Lasater 1, M. Pickens sur, 150 ft from w and 911 ft from s line. Johnson & Fraser, Wichita Falls, Wilson A7, B 26, Geraldine sur, 300 ft n of No. 6. E. G. Christie, Olney, Campbell 1, B 28, A. Armes sur, 150 ft from n and e lines. Moran Drilling Co., Wichita Falls, Scott 2, BS&F sur, 2635 ft from w and 150 ft from s line. Texas Co., Wichita Falls, Turbeville 1, B 124, Club Ranch sur, 150 ft s of center of n line. Petroleum Prod. Co., Wichita Falls, Falls Co. 1, B 46, F. C. S. L. sur, 750 ft from s and w lines. Consolidated Oil Co., Wichita Falls, Tarr 1, B 136, Harris sur, 700 ft from n and w lines. Panhandle Refg. Co., Wichita Falls, Snider 1, H. Pearce sur, 150 ft from n and 550 ft from w line.

ANDERSON COUNTY—Pure Oil Co., Fort Worth, Jackson 1, T. H. Kinley sur, 400 ft from e and 720 ft from s line.

AUSTIN COUNTY—Humble, Houston, Mitchell 1, W. C. White sur, 315 ft from se and sw lines; Stahlbaum 1, A. Ives sur, 520 ft from nw and 500 ft from ne lines; Mitchell 1, W. C. White sur, center.

BROWN COUNTY—P. H. Burtner, et al, Fort Worth, Wise 2, J. M. Clark sur, 200 ft from n and 185 ft from e line. Lloyd Oil Corp., Fort Worth, Collier 19, S 139, W. A. Smith sur, 300 ft s or No. 18; Collier 20, S 139, W. A. Smith sur, 600 ft w of No. 19; Stanley 12, S 139, W. A. Smith sur, 300 ft w of No. 3. Geo. W. McClung, Cisco, Davis 3, S 276, B 43, K.C.S.L. sur, 1450 ft from n and 2575 ft from e line; Lowe 2, S 138, J. Winn sur, 200 ft n of center of s line. H. C. Kessler, Brownwood, Bryson 1, B 282, S. Jones sur, 150 ft from n and w lines. Prairie, Ranger, Lynch 3, M. Little sur, 1350 ft from n and 1826 ft from e line; Armstrong 5, H&GN No. 1 sur, 1450 ft from s and 450 ft from w line. Greene Prod. Co., Inc., Fort Worth, Moore 7, S 4, SA&MG sur, 450 ft s of No. 5. S. B. Owens, Inc., Brownwood, Turner 1, No. 55, M. Duncan sur, 150 ft from s and e lines. Graham & Lash, Cisco, Guyer 5, H. Batton sur, 1050 ft from n and 900 ft from w line. Sinclair Oil & Gas Co., Fort Worth, Long 1, S 37, HT&B sur, 150 ft from s and e lines e¼ of ne¼. Little Flower Oil Co., Brownwood, Green 21, G. W. Huffman sur, 500 ft e of center of w line. C. O. Moore Oil Corp., St. Louis, Cross 1, R. Honeycutt sur, 150 ft from n and w lines. Venmex Oil Co. of Texas, Wichita Falls, Hickman C7, T. Benson sur, 450 ft from n and 544 ft from e line. Hutton Oil Corp., Cisco, Cox 1, S 641, BBB&C sur 2, 640 ft from s and 660 ft from w line.

BEXAR COUNTY—Schimmel Prod. Co., Fort Worth, Gayle 3, B 2, CEPI&M Co. sur, 946 e of No. 1. W. H. Kennon, San Antonio, Fee 2, No. 4, M. F. Rodriguez sur, 150 ft ne of No. 1.

CALLAHAN COUNTY—E. N. Schaffner, Cross Plains, Cowen 4, B 73, C.C.S.L. sur, 300 ft n of No. 3. Drew Beams, Okmulgee, Okla., Snyder 2, S 140, BBB&C sur, 300 ft n of No. 1, sw¼ of nw¼. Moutray Oil Co., Abilene, Hatchett 3B, S 23, D & D Asy. sur, 150 ft from n and 750 ft from w line se¼ of ne½ of Sec. 23; Hickman 40, S 149, BBB&C sur, 300 ft se of No. 15. G. G. Mortimer et al, Cisco, Hickman 2, S 2, I&GN sur, 150 ft s and w lines ne¼ of se½. Gunn Prod. Co., Cross Plains, Orrell 1, B 97, C.C.S.L. sur, 600 ft from n and 150 ft from w line. Duffy & Ewmo Oil Corp., Abilene, Graves 1, S 90, T&P Ry. sur, 220 ft from w and 1980 ft from s line, Sec. 90. M. C. McDonald, Putnam, Lobban 31, 2295 TE&L sur, North central part of lease. Moutray Oil Co., Abilene, Hatchett 4B, S 23, D&D Asy. sur, 150 ft from n and e lines se¼ of ne½; Finley 2C, S 75, Bayland Asy. sur, 150 ft from n and w lines se¼ of ne½. L. G. Bradstreet Co., Fort Worth, Miller 12, B 98, CCSL No. 181 sur, 450 ft from n and 200 ft from e line. Texas Co., Wichita Falls, Hatchett 2B, S 23, D&D Asy. sur, 782 ft from w and 150 ft from s line ne½ of n¼ of Sec. 23. J. F. West, Cisco, Higgins 1, S 40, D&D Asy. sur, 150 ft from n and w lines n½ of e½ of middle 1/3 Sec. 40.

CLAY COUNTY—Saxet Oil Co., Petroleum, Wyatt 46, B 25, Lockridte sur, 147 ft ne of No. 34; Stine C 44, L 2, B 2, P.C.S.L. sur, 215 ft se of No. 10; Stine A 43, S 4, B 2, P.C.S.L. sur, 142 ft se of No. 3; Fee C 41, L 15, B, 13, CNK sur, 155 ft w of No. 15; Stine C 10, B 2, L 2, P.C.S.L. sur, 90 ft w of No. 3; Wyatt 42, B 36, P.C.S.L. sur, 130 ft nw of No. 15; Magnolia A 40, L 30, B 25, Lockridge sur, 120 ft sw of No. 3; Perkins 1, L 4, B 25, Lockridge sur, 150 ft from n and w lines of lot 4; Stine C 12, L 2, B 2, P.C.S.L. sur, 300 ft e of No. 11; Fee C 47, L 45, B 14, CN&K sur, 217 ft ne of No. 24.

COOKE COUNTY—Humble, Wichita Falls, Poteet 2, Stephens sur, 1980 ft from n and 450 ft from e line. Lesh & McCall, Nocona, Gibson 1, Club sur, 1038 ft from n and 150 ft from e line. Lloyd Oil Corp., Fort Worth, Wheelock 1, C. Underwood sur, 150 ft s and e lines.

COMANCHE COUNTY—E. P. Weister, Tulsa, Harris 8, S 2, BS&F No. 4, sur, 450 ft from w and 200 ft from n line.

CHAMBERS COUNTY—Yount-Lee Oil Co., Beaumont, Chambers County Agricultural Co. 5, Wm. Bloodgood sur, 350 ft from n and 50 ft from e line. Pure Oil Co., Fort Worth, Mayes 2, E. H. R. Walis sur, 750 ft sw of No. 1. Sun Oil Co., Beaumont, Chahbers County Agricultural Co. 2, Bloodgood sur, 148 ft nw of No. 1. Rexal Pet. Corp., Houston, Smith 1, B 3, H. Griffith, center.

CHEROKEE COUNTY—Humble, Houston, Elliott & Clark B2, M. Garcie sur, 125 ft nw of No. 1.

CALDWELL COUNTY—Gulf, Fort Worth, Northcutt 1, J. Hinds sur, 750 ft from e and 226 ft from s line.

CARSON COUNTY—Champlin Refg. Co., Enid, Okla., McConnell 3, S 67 B 4, I&GN sur, 330 ft from n and w lines w½ of nw¼. Skelly, Tulsa, Schafer 13, S 88, B 4, I&GN sur, 330 ft from s and w lines; Schafer 14, S 68 B 4, I&GN sur, 330 ft from n and e lines.

COLEMAN COUNTY—Gwinnup & Sun Oil Co., Dallas, House 2, No. 481, L. Johnson sur, 2256 ft from e and 596 ft from s line of No. 481. Roth & Faurot, Valera, Stevens 4, P 5, CCSL No. 57 sur, 300 ft se of No. 1. Stepp & Keister, Knoxville, Tenn., Shore 2, S 72 P 1, GH&H sur, 700 ft from n and 900 ft from e line.

DUVAL COUNTY—Humble, Houston, Kohler 22, No. 395 sur, 495 ft from w and 165 ft from n line; Kohler 20, No. 251 sur, 1485 ft from w and 1585 ft from n line of Sec. 251; Kohler 23, No. 404 sur, 1485 ft from s and w lines of Sec. 404; Kohler 24, No. 423 sur, 165 ft from n and w lines of Sec. 423; Kohler 25, No. 172 sur, 165 ft from n and w lines of Sec. 172.

EDWARDS COUNTY—A. M. Griffith, Fort Worth, Wardlaw 1, S 60, B V8, J. S. Clift sur, 1050 ft from w and 150 ft from s line s 60.

FORT BEND COUNTY—Moody Corp., Tulsa, West-Schenck 7, T. Habermacher sur, 475 ft from s and 50 ft from w line. Gulf, Houston, Moore 19, J. Frazier sur, 5900 ft from n and 400 ft from w line of survey. Navarro Oil Co., Houston, Davis 4, S 30, P. Wickson sur, 250 ft from n and 50 ft from e line; Hausler 3, B 27, B. Wickson sur, 200 ft se of No. 1.

GRAY COUNTY—Gulf, Fort Worth, Bowers 7, S 89, P B 2, H&GN sur, 660 ft n of No. 3. Danciger Oil & Refg. Co., Fort Worth, Powell 1, S 28, B B2, H&GN sur, 330 ft from n and w lines nw¼ of nw¼. Texas Co., Wichita Falls, Faulkner 2, S 29, B B2, H&GN sur, 330 ft from s and w lines of Sec. 29; Bowers 6, S 89, B B2, H½GN sur, 270 ft from e and 330 ft from s line of S 89; Patton 1, S 61, B B2, H&GN sur, 330 ft from n and 1345 ft from w line of Sec. 61; McLarty A5, S 2, B 1, ACH&B sur, 330 ft from n and w lines of S 2; Bowers 7, S 89, B B2, H&GN sur, 330 ft from w and 990 ft from s line ½ S 89. Panhandle Refg. Co., Wichita Falls, Saunders 2, S 3, B 1, ACH&B sur, 330 ft from n and e lines.

GONZALES COUNTY—F. B. Sorrells, Gonzales, Wilkinson 1, R. Ward sur, 800 ft from s and w lines.

HARDIN COUNTY—Capitol Oil Co.,

WEEKLY COMPARISON OF NEW WELLS

Following is a condensed table giving a comparison of permits or locations made for new wells during the past year in Kansas, Oklahoma, Arkansas, Louisiana, Texas, California and the Mountain States:

	Week ending April 20	Previous week	Total this month	Total this year	This week Last Yr.	This month 1928	1928 year total
Arkansas	..	5	14	51	7	9	331
California	23	37	83	450	16	33	1,207
Louisiana	10	18	50	238	20	30	680
Kansas	16	23	53	283	25	46	1,032
Oklahoma	50	50	140	891	75	143	3,744
Texas	191	141	416	2,443	169	321	8,297
Total	290	274	756	4,356	312	582	15,291

Orange, Hodges 11, M. A. Harris sur, 785 ft from e and 285 ft from s line. West Prod. Co., Houston, Baker 1, J. B. Reaves sur, 195 ft from e and 100 ft from s line. F. B. Hurst, Sour Lake, Fee 1, S. Jackson sur, 150 ft from s and 81 ft from w line. East Batson Oil Co., Batson, Donohoe 19, BBB&C sur, 95 ft from n and 26 ft from e line. Chas. Paggi & Co., Beaumont, Lewis 9, B 9, M. E. Hopkins No. 2 sur, 550 ft from e and 50 ft from s line.

HUTCHINSON COUNTY—Phillips, Bartlesville, Glass 1, S 80, B 46, H&TC sur, 730 ft from n and 666 ft from w line of s½ n 80 ac of s 240 ac.

HARRIS COUNTY—Sun Oil Co., Beaumont, Blaffer 47, R. Dunman sur, ne of No. 16. Texas Co., Houston, Landslide 262, Dunman sur, 77 ft from n and 50 ft from e line of B 36. Navarro Oil Co., Houston, Dooley 15, B 16, J. Hamilton sur, 50 ft from w and 1278 ft from s line. York & Robertson, Houston, Garrett 1, Harris & Carpenter sur, 200 ft from n and w lines.

JONES COUNTY—E. M. Treat Oil & Gas Co., Abilene, Hodges 1, S 6, B 6, A. Bell sur, 750 ft from n and 2624 ft from w line nw¼ of sw¼ of Sec. 6. Phillips, Bartlesville, Pomroy 3, S 16, B 19, T&P sur, 330 ft from w and 878 ft from s line. White Eagle & Callihan, Abilene, Teague 1, Austin & Williams sur, 949 ft from e and 917 ft from s line.

JACK COUNTY—Murback & Holmberg et al, Wichita Falls, Warren 1, 2784 TE&L sur, 150 ft from w and 450 ft from s line S 2784.

JIM HOGG COUNTY—Texas Co., Houston, Vela 2, No. 582 sur, 2980 ft from w and 1900 ft from s line.

JEFFERSON COUNTY—Yount-Lee Oil Co., Beaumont, Gladys 88, J. A. Veatch sur, 24 ft from s and 9 ft from e line Blk 99.

LIBERTY COUNTY—Daisetta Oil Co., Daisetta, Wilson 1, Devore sur, center. Sun Oil Co., Beaumont, Mitchell 43, M. G. White sur, 175 ft n of No. 28.

LIVE OAK COUNTY—Houston Oil Co., Houston, Parr 1, J. McMullen sur, 532 ft from sw and 635 ft from ne line.

McCULLOCH COUNTY—Roth & Faurot, Valera, Smith 2, S 1293, L. Earnhardt sur, 1800 ft from w and 4800 ft from s li s 1293.

MILAM COUNTY — Jim Burkhead, Fort Worth, Weigmann 1, A. Pollard sur, 1075 ft from n and 450 ft fro mw line. Central Texas Refg. Co., Corsicana, Isaac 4, T. J. Chambers sur, 300 ft e of No. 1.

NOLAN COUNTY—Phillips, Bartlesville, Plunkett 1, S 66, B 23, T&P sur, 330 ft from s and e lines of nw¼.

NUECES COUNTY—F. P. Zoch, San Antonio, Nesloney 1, Casa Blanca sur, 1050 ft from w and 150 ft from n line; Baldwin 1, B 21, J. C. Russell sur, 150 ft from n and e lines; Jno. Kelly 1, No. 5, Rge 6, Rincon Del sur, center.

ORANGE COUNTY—Orange Pet. Corp., Orangefield, Michel-Berwick 2, Wm. Dyson sur, east central part of lease.

PANOLA COUNTY—Natural Gas Prod. Co., Shreveport, Floyd 2, B. C. Jordan, north central part of lease.

PECOS COUNTY—Phillips, Bartlesville, Ramsey 2, S 17, B 194, GC&SF sur, 990 ft from n and 1970 ft from E li ne¼.

REFUGIO COUNTY—Houston Oil Co., Houston, Heard 6, Refugio sur, 150 ft from s and e lines.

SHACKELFORD COUNTY—Less Combest et al, Mineral Wells, Matthews 2, S 1, E. T. Ry. sur, 150 ft from w and 300 ft from s li nw¼ of nw¼. A. D. Robinson, Dallas, Blach 9, 372 TE&L sur, 1642 ft from ne and 1867 ft from se line of s 372. Floyd W. Holder, Breckenridge, Huskey 1, 527 TE&L sur, 150 ft from n and e lines. Simms Oil Co., Dallas, Lones 9, S 64, B 11, T&P sur, 2150 ft from n and 1800 ft from w li s 64. Roeser & Pendleton, Inc. & Phillips, Bartlesville, Walker 1, 377 TE&L sur, 775 ft from sw and 462 ft from se li s 377. Oyster & Rife, Abilene, Davis 1, S 15, B 14, T&P sur, center of sw¼ of ne¼.

STEPHENS COUNTY—J. E. Lewis et al, Eastland, Thorp 1, S 455, S. P. Ry. sur, 1100 ft from n and 600 ft from e line. Amerada, Fort Worth, Dickie 2, No. 7, Geo. Waggoner sur, 3018 ft from w and 2500 ft from n line.

TAYLOR COUNTY—Root Drilling Co., Eastland, Martin 1, S 30, B 19, T&P sur, 990 ft from w and 1650 ft from s line.

THOCKMORTON COUNTY—Henry Hobbs, Wichita Falls, Cathey 1, S 225 BBB&C sur, 150 ft from s and w lines sw¼ of sw¼.

VAN ZANDT COUNTY—Pure Oil Co., Fort Worth, Martin 1, J. Stephenson sur, 150 ft from n and 750 ft from e line.

WICHITA COUNTY—Bass & Dillard, Wichita Falls, Woodward 1, B 325, Wag. Col. sur, 750 ft from n and 150 ft from e li B 325. J. M. Hemby, Electra, Duke 3, S 20, B 9, H&GN sur, 300 ft w of No. 2. Newberry Oil Co., Fort Worth, Obenhouse 1, No. 327 Wag. Col. sur, 150 ft from s and e lines. Riner & Bailey, Wichita Falls, Michie 2, B 8, D. Kenard sur, 300 ft e of No. 1. Bridwell Oil & Clark, Wichita Falls, Deiner 1, B 326, R. M. High sur, 150 ft from s and w lines of High survey. Magnolia, Dallas, Donohue 14, J. W. Robertson sur, 325 ft sw of No. 11. Roy F. Wright, Wichita Falls, Jennings 3, S 12, H&TB sur, 300 ft sw of No. 1. Texas Co., Wichita Falls, American Refg. 1, B 69, W. V. F. L. sur, 150 ft from n and 450 ft from w line. Dr. C. W. Wallace, Wichita Falls, Kemp & Kempner 5, B 75, W. V. F. L. sur, 150 ft from n and 1492 ft from w line. Hi Land Oil Co., Wichita Falls, Piper 1, B 11, H. T. Lewis sur, 150 ft from n and w lines of Blk 11.

WILBARGER COUNTY—Melat Oil Co., Fort Worth, Waggoner 2, S 10, B 4, H&TC sur, 300 ft w of No. 1 n½ of se¼ 500 ft e of No. 1. Staley, Wynne & Co., Wichita Falls, Waggoner B3, S 25, B 4, H&TC sur, 300 ft s of No. 2; Waggoner R1, S 26, B 4, H&TC sur, 150 ft from n and e lines se¼ of ne¼; Waggoner G3, S 32, B 4, H&TC sur, 150 ft from s and e lines of nw¼ of se¼; Waggoner G4, S 32, B 4, H&TC sur, 300 n of No. 3; Waggoner G5, S 32, B 4, H&TC sur, 300 ft n of No. 4; Waggoner G6, S 32, B 4, H&TC sur, 300 ft n of No. 5; Waggoner G7, S 32, B 4, H&TC sur, 300 ft e of No. 2. R. R. Robertson, Wichita Falls, Waggoner 1, S 10, B 4, H&TC sur, 150 ft from e and 450 ft from s line. Golding & Cochran, Wichita Falls, Waggoner H4, S 32, B 4, H&TC sur, 300 ft n of No. 2. Fain-McGaha Oil Corp., Wichita Falls, Waggoner 11, S 31, B 4, H&TC sur, 1050 ft from e and 150 ft from n line. Wilbarger Oil Co., Wichita Falls, Waggoner 2, S 50, B 4, H&TC sur, 200 ft from s and w lines ne¼ of ne¼. Phillips, Bartlesville, Waggoner 26, S 45, B 4, H&TC sur, 330 ft from n and e lines sw¼ of sw¼. W. T. Knight, Wichita Falls, Waggoner 1, S 40, MEP&P sur, 150 ft from s and e lines n½ of nw¼. Empire, Wichita Falls, Waggoner 4C, S 25, B 4, H&TC sur, 600 ft from n and 195 ft from w line nw¼ of nw¼ of Sec. 25; Waggoner 4A, S 32, B 4, 550 ft from e and 100 ft from s li se¼ of nw¼; Waggoner 8B, S 32, B 4, 550 ft from e and 265 ft from n li ne¼ of nw¼. Phillips, Bartlesville, Waggoner 2, S 45, B 4, H&TC sur, 195 ft from s and w lines se¼ of sw¼. D. M. Whittekin, Fort Worth, Waggoner 1, S 38, B 3, H&TC sur, 150 ft from n and w lines sw¼ of ne¼. Richfield Oil Co., Inc., Fort Worth, Waggoner 1, S 45, B 2, H&TC sur, 150 ft from n and w lines nw¼ of nw¼; Waggoner A1, S 10, B 4, H&TC sur, 150 ft from s and w lines e½ of ne¼ of ne¼.

WHEELER COUNTY—Lone Star Gas Co., Dallas, Ridinger 1, S 65 B 17, I&GN sur, 661 ft from n and 668 ft from w li s 65. Lela Oil & Gas Co., Amarillo, Williams-Laycock 6, S 9, B 27, H&GN sur, center of sw¼ of ne¼ center of nw¼ of ne¼.

WINKLER COUNTY—Dixie & Southern Crude, Fort Worth, Hendrick R3, S 27, B 26, 1617 ft from w and 1320 ft from s line of s 27; Hendrick C4, S 28, B 26, 1320 ft from n and 1615 ft from e line of s 28; Hendrick K7, S 41, B 26, 1320 ft from n and 1650 ft from e line of s 41; T. G. Hendrick J8, S 9, B B12, 330 ft from e and 440 ft from s line of s 9.

WEBB COUNTY—Texas Co., Houston, Weeks-Wilder 2, No. 683-690 sur, 150 ft from n and 1000 ft from e line.

WASHINGTON COUNTY—Lee Dekle, Brenham, Calhoun 1, Perry sur, 194 ft from nw and 750 ft from sw line.

WHARTON COUNTY—Sun Oil Co., Beaumont, Thomas 7, S. F. Austin sur, 50 ft from w and 500 ft from s line.

YOUNG COUNTY—Maycamp Drilling Co., Fort Worth, Prideaux 2, B 15, Tarkenton sur, 300 ft s of No. 1. Mrs. L. Walkup, Wichita Falls, Jeffrey 1, 58 TE&L sur, se corner. A. J. Singer & Underwood Drilling Co., Wichita Falls, Edward 1, 1499 TE&L sur, 450 ft from e and 150 ft from s line. Texas Unity Oil Co., Dallas, Swain 1, 1466 TE&L sur, 150 ft from s and e lines. Simms Oil Co., Dallas, Willis 2, 2047 TE&L sur, 990 ft from ne and se lines. Riggs & Oliphant, Graham, Langston 1, 1490 TE&L sur, 150 ft from n and w lines of s 1490. Murback & Holmberg, Wichita Falls, Prideaux 1, B 15, Tarkenton sur, 400 ft from n and 150 ft from e line. Continental & Underwood Drilling Co., Wichita Falls, Campbell 1, 1376 TE&L sur, 1725 ft from n and 200 ft from e line. Cunningham & Bratcher, Loving, Edwards 7, S. Tynes sur, 300 ft s of No. 4. Continental Oil Co., Wichita Falls, Campbell 7, 1390 TE&L sur, 1800 ft from n and 200 ft from w line s 1390. Lloyd Oil Corp., Fort Worth, Gregg 1, S 1, T. Addington sur, 200 ft from s and w lines of s½ of ne¼.

ZAVALLA COUNTY—Crystal Oil & Gas Co., Crystal City, Kite 1, Zavalla Land & Water sur, 400 ft from n and 600 ft from e line of nw¼ of nw¼ of Sec.

ZAPATA COUNTY — T. P. Morgan, Laredo, Hinnant 1, S 74, SK&K sur, 825 ft from e and 150 ft from s line of s½ of nw¼. O. W. Killam, Laredo, Cuellar 13, J. M. Pereda sur, 1200 ft from n and 1290 ft from w line.

CALIFORNIA

BELRIDGE—Berry Oil Co., No. 30, 30-28-21.

DOMINGUEZ—Shell Oil Co., Reyes 39, 34-3-13.

HUNTINGTON BEACH—Standard Oil Co., H. B. 62, 2-6-11. Rex Oil Co., No. 12, 2-6-11.

INGLEWOOD—Standard Oil Co., Freeman 1, 5-2-14.

KERN COUNTY—Day Oil Co., No. 1-A, 1-27-18. General Pet. Corp., KCL 25-1, 25-26-25.

KETTLEMAN HILLS—Standard Oil Co., No. 261, 11-22-17; No. 58, 17-22-18.

KINGS COUNTY — Kelenberger and Kesselman, No. 1, 24-21-18.

LAWNDALE—Smith Development Co., No. 8, 20-3-14.

LONG BEACH—Woolner Oil Corp., Signal Hill 6, 19-4-12. Dabney-Johnston Oil Corp., No. 37, 24-4-13.

MT. POSO—General Pet. Corp., Glide 21-23, 21-27-28.

MONTEBELLO—Standard Oil Co., Whitehead Community 4, 3-2-12.

SAN LUIS OBISPO COUNTY—Dollar Oil Co., Quinan 1, 3-32-22; K. and M. 1, 3-32-22.

SANTA FE SPRINGS—General Pet. Corp., Hall-Midway 105, 6-3-11; Santa Fe Comm. 177-E, 6-3-11.

SUNSET—Rio Grande Oil Co., No. 1, 22-11-23. California-Western Oil Co., No. 1, 17-11-23.

VENTURA—Shell Oil Co., Taylor 39, 28-3-23; Taylor 42, 28-3-23.

KANSAS

BUTLER COUNTY — Alladin Pet. Corp., McLean 1, sw se nw, 8-27-6e; Empire, Cranston 7, se sw se, 22-27-5e; Empire, Brandenburg "A" 6, nw ne ne, 22-27-5e; Lario O&G Co., Glaney 1, sw, 10-26-3e.

GREENWOOD COUNTY — Sheedy et al, Green "B" 3, se nw nw, 12-23-9e.

HARVEY COUNTY—McPherson O&G Dev. Co., Ruth 1, sw ne nw, 14-23-2w.

MARION COUNTY—Prairie O&G Co. & Connell, Girak 1, se sw, 3-18-3e.

RUSH COUNTY—Sinclair, Seuser 1, se nw nw, 8-18-17e.

SALINE COUNTY—Dixie Oil Co., Muir 1, sw se sw, 6-15-2w; Kenney Coastal Co., Hughes 1, ne, 20-134w.

SEDGEWICK COUNTY—Bu Vi Bar Pet. Co., et al, Shawver 3, ne se nw, 7-26-1e; Burnett O&G Co., Davidson 1, nw sw, 27-26-1e; Bu Vi Bar et al, Vallbrecht 1, nw sw ne, 72-6-1e; Bu Vi Bar, Goodrich 6, nw he, 6-26-1e; Bu Vi Bar et al, Bright "A" 6, se nw, 6-26-1e.

SUMNER COUNTY — Marland & Carter, Kratz 1, sw nw, 26-34-2e.

OKLAHOMA

CHEROKEE COUNTY — Shell, Willey 1, nw ne, 25-16-19e.

CREEK COUNTY—J. A. Abbott et al, Petraseck 1, ne sw, 12-19-9e. Silurian & Houston Oil Co., Anthis 2, se sw se, 6-19-7e. William Sherry et al, Barnett 1, ne sw, 20-18-10e. C. G. Tibbens, Connessenny 40, csl se nw, 30-15-9e (twin).

HUGHES COUNTY—Texas, Bryant 1, se ne sw, 9-6-8e.

(Continued on page 100)

WILDCATS FROM ALL SECTIONS

NORTHERN CALIFORNIA

Company, Well and Location	Initial Production Bbls.	Depth
BELRIDGE—		
H. J. Barwell's 1, 24-28-20	*	1005
BUTTONWILLOW—		
Doheny-Stone Drlg. Corp.'s Salisbury 1, 7-29-24	*	4750

KERN COUNTY

BENA—Elmer Oil Co.'s 1, 15-30-30, dr shale 1588 ft.

BUTTONWILLOW—Richfield's Redding 1, 36-27-23, 11¾-in cas cmt 4385 ft, td 4400 ft. Southern California Gas Co.'s Wisnom 1, 27-28-23, rigging up.

GOULD HILLS—Ozena Oil Co.'s 1, pumping oil and water, td 2930 ft.

KERN RIVER—Richfield's Boston 1, 20-28-28, dr shale 3375 ft. F. M. Sayre's 1, 8-28-28, dr gray sand 1974 ft.

LERDO—Shell's An-1, 5-29-27, coring 950 ft.

McFARLAND—General Pet. Corp.'s 1, 26-26-25, dr 250 ft.

McKITTRICK—The Ohio Oil Co.'s Wisecarver 1, 9-31-22, sp. Ventura-Pacific Oil Co.'s 1, 18-29-22, pumping water and oil, td 3375 ft.

ROSEDALE—Elmer Oil Co.'s 1, 33-29-26, fsh for bit 2485 ft.

SHALE HILLS—Day Oil Co.'s 1, 1-27-18, deepening from 600 ft. William Gilbert's 1, 35-26-18, deepening from 750 ft.

SAN EMIDIO—Union's KCL-2, 5-10-21, dr hard sand 2666 ft.

SANTA BARBARA COUNTY

BUELL CANYON—Union's Buell 1, lcn.

CARPENTERIA—Continental's Franklin 1, fsh for liner 4100 ft; Bailard Comm. 1, rig; Kitty Bailard 1, lcn.

ELWOOD—Earl Pet. Corp.'s Lanter 1, abn 5285 ft.

GOLETA—F. A. Anderson's 1, dr brown shale 3338 ft. General Pet. Corp.'s More 1, 21-4-28, 15½-in cas cmt 500 ft. Petroleum Securities Co.'s Bishop 1, near Goleta Point, new lcn. Southwest Prod. Co.'s Pickett 1, 2-4-28, changing to rotary, td 2920 ft.

ORELLA—Shell's Rutherford 1, 36-5-31, dr hard sand 3084 ft.

POINT CONCEPCION—Standard's Gerber 1, dr hard sand 1970 ft. Western Gulf Oil Co.'s Hollister 1, new lcn.

SANTA MARIA—Shell's Union Sugar 1, 25-10-35, dr 2975 ft; Union Sugar 2, 26-10-35, dr shale 1400 ft. System Oil Co.'s Bradley 1, 36-10-34, fsh 550 ft.

SANTA BARBARA—Channell Oil & Dev. Co.'s Fellowship 1, 29-4-27, sr 445 ft. Exeter Oil Co.'s Ranch 1, dr shale 3177 ft. Padre Oil Co.'s Dos Pueblos 1, 8-4-29, dr shale 2400 ft. Bankline Oil Co.'s Duncan Ranch 1, dr shale 4240 ft.

SUMMERLAND—American Oil Developers' Submarine 1, dr 622 ft. George F. Getty's Becker 1, 28-4-26, co to deepen from 3100 ft. Shell's Ralph 1, 18-4-25, lcn.

TORTUGA CANYON—Standard's Schyvers 1, dr hard sand 2166 ft.

VENTURA COUNTY

CONEJO—Triunfo Oil Co.'s 1, 24-1-19, dr hard sand 848 ft.

FILLMORE—Federal Oil Co.'s Elkins 1, 5-3-19, pumping oil and water, td 3385 ft; Elkins 2, 5-3-19, bldg roads.

HUENEME—The Texas Co.'s Eastwood 1, dr shale 1656 ft.

LOCKWOOD—Lockwood Valley Oil Co.'s 1, 28-8-21, new lcn.

MUD CREEK—Superior's Kirtland 1, 14-4-21, lcn.

OJAI—Continental's Thompson 1-A, cmt 7-in cas 6740 ft.

PIRU—Bolsa Chica Oil Corp.'s Snow 1, 4-4-18, co 400 ft. Pacific Western Oil Co.'s Tehmescal 5, 3-4-28, plugged to 3575 ft, 8⅝-in cas cmt 3200 ft.

RED MOUNTAIN—E. J. Miley's Casitas 2-A, dr red shale and sand 1100 ft; Oakgrove 1, 11-3-24, new lcn.

ABBREVIATIONS

NOTE—The following is the explanation of abreviations, signs, etc., used in completion and wildcat reports: *—dry hole, abandoned well; ‡—salt water; †—junked and abandoned; ¶—million feet of gas; abn—abandoned; bbls—barrels; b.s.—basic sediment; cas casing; co—cleaning out; dk—derrick; dr—drilling; fsh—fishing; ft—feet; in—inches; lcn—location; m—milling; n, s, e, w—north, south, east, west; r—reaming; sd—shut down; sdtr—sidetracking; sp—spudding; sr—straight reaming; std—standardizing; sw—salt water; td—total depth; ur—underreaming; wo—workover; wosr—waiting on standard rig.

SANTA PAULA—W. W. Bryant's Anlauf 3, 21-4-21, oil and gas showing 960 ft. Empire Oil Co.'s 4, 3-14-29, rig. San Pedro-Pt. Fermin Synd.'s Kellerman 1, sr 715 ft.

SATICOY—Standard's Citrus 5, 10-2-22, dr gray sand 5666 ft.

SESPE—The Texas Co.'s McGuire 1, 2-3-19, drilled as shallow hole, sd 510 ft.

SIMI—Shell's Marr 1, 31-3-17, coring 2722 ft.

SOUTH MOUNTAIN—Ring Pet. Corp.'s Converse 1, pumping 60 bbls oil, td 4840 ft.

VENTURA—California-Ventura Oil Co.'s La Crosse 1, dr 250 ft.

Miscellaneous

KINGS COUNTY—Dudley Ridge Synd.'s 1, 12-23-19, co 1400 ft, td 1455 ft.

FRESNO COUNTY—Currency Pet. Co.'s 1, 28-21-14, dr shale 1733 ft; 1, 14-21-14, dr 175 ft. Section 30 Oil Co.'s 1, 30-19-15, dr 235 ft. Hornaday & Huggins' 1, 32-14-28, dr blue shale 2735 ft.

MERCED COUNTY—Applegate & Sanshaw's 1, 24-6-10, dr gray sand 3680 ft. Henry L. Kuhn's 3, 8-12-19, dr 345 ft.

MONTEREY COUNTY—Indiana Dome Oil Co.'s Edna 1, 26-21-12, fsh 2800 ft. North Star Oil Co.'s 1-A, 5-32-13, dr streaks oil sand 3530 ft. Lincoln Drlg. Co.'s 1, 18-32-23, sd 785 ft. Painted Hills Oil Co.'s Pecho 1, 34-20-10, dr hard sand 1988 ft. Panorama Oil Co.'s 7-31-21, dr hard sand 3536 ft. Thos. H. Purman's 1, 12-32-22, changing to rotary, td 2595 ft. See Canyon Oil Co.'s 1, 18-31-12, co 1100 ft. Texas Pacific Coal & Oil Co.'s Dutton 1, 25-32-14, re-dr 215 ft. Union's Russ 1, dr brown shale 3450 ft; Chandler 1, 12-32-15, dr hard sand 3177 ft.

TULARE COUNTY—Bruce Frame's 1, 8-23-26, new lcn.

SOUTHERN CALIFORNIA

Company, Well and Location	Initial Production Bbls.	Depth
DOWNEY—		
Rio Grande Oil Co., Osborne 1	*	5150

ATHENS-ROSECRANS — Burlingame Pet. Corp.'s Hamm 1, dr shale 585 ft.

CALABASAS — Pugh-Miller Drilling Co.'s Colyear 1, dr shale 1200 ft.

CHATSWORTH—Russell Pet. Co.'s Joughin 2, dr coarse sand 1960 ft.

COSTA MESA—Meas Pet. Corp.'s B. A. 1, dr hard sand and shale 3966 ft.

FULLERTON—Shell Oil Co.'s Stern 1, preparing to test oil sand and shale, td 6910 ft.

HUNTINGTON BEACH—Western Drilling & Producing Co.'s Meyer 1, dr brown shale 2100 ft.

HAWTHORNE—Standard's Freeman 1, dr sandy shale 1325 ft.

INGLEWOOD-POTRERO — California-Eastern's Pollard-Community 1, flowed mud and water on second production test at 4150 ft. Midland Oil Co.'s 1, new lcn. Petroleum Securities Co.'s 1, new lcn. Max L. Pray's 1, dr shale 2715 ft. John A. Woodward's 1, dr shale and streaks oil sand 4323 ft.

LOS NIETOS—R. W. Jackson's 1, fsh for 10-in cas 730 ft.

MANHATTAN BEACH—Western Drilling & Producing Co.'s Carlin-Smith 1, dr shale and streaks of oil sand 4900 ft.

NEWHALL—Coastline Oil Co.'s Mazie 1, dr brown shale 500 ft. Pico Dome Oil Co.'s 1, dr 250 ft.

POMONA—Pomona Oil Assn.'s Community 1, dr hard sand 1050 ft.

PUENTE—Richfield's Didier 1, dr hard sand 2350 ft.

VENICE—Ohio Oil Co.'s Del Rey 1, dr sandy shale 3100 ft.

IMPERIAL COUNTY—Imperial Valley Pet. Co.'s 1, dr shale 3727 ft.

RIVERSIDE COUNTY—Hemet Pet. Co.'s Ward 1, made water on test. Trabuco Oil Co.'s 1, dr hard sand 3670 ft.

SAN BERNARDINO COUNTY — Mahala Oil & Gas Co.'s 1, fsh for cas 4000 ft. Western Pacific Oil Co.'s 3, dr out cmt, td 3365 ft.

SAN DIEGO COUNTY — S. S. Turner's Baler 1, dr sand and shale 1744 ft.

KANSAS

BARBER COUNTY — Barbara Oil Co.'s Lytle 1, cel ne ne sw, 12-33-13w, water 4645-51 ft, will plug back to gas at 4558 ft. Rolands et al's Pickens 1, ne nw ne, 27-30-14w, 8-inch csg 4475 ft. Allison & Fitzwilliams' Morrise 1, 1, c nw se se, 9-30-12w, dr 1450 ft.

BUTLER COUNTY—Smith & Ash, Donnelly 1, nec 8-24-6e, dr 1500 ft. Phillips & Shell's McClellan 1, se sw 23-26-6, dr 1930 ft. LaRobb et al's Bronsenger 1, ne se 24-27-3e, ru. Shell's Thiesstein 1, e se sw se 10-24-3e, dr 1235 ft.

CHASE COUNTY—Grisner & Fowler's Carson 1, ne ne 9-21-7e, sd 3190 ft.

CLAY COUNTY — Derby & Snow Bros.' McNeil 1, c sw nw 15-9-4e, hfw 2150-55 ft, hfw dry and abn.

COWLEY COUNTY—Pyle & Sutter's Lindstrum 1, se ne 9-25-4e, hfw 3648-51 ft. Wakefield & Osborne's Osborne 1, nw ne 18-30-3e, dr 2456 ft. J. B. Markey's Tatum 1, se sw 11-31-6e, sd 500 ft.

DICKINSON COUNTY — T. C. Johnson's Detweiler 1, swc ne nw 32-16-4e, dr 1480 ft.

EDWARDS COUNTY — Amerada-Wilcox, Teansil 1, nw cor 32-25-19w, dr 4925 ft.

ELLIS COUNTY — Rush Oil Co.'s Gatewood 1, nw 4-15-20w, sd 1100 ft. Finney & Weimer, Freeman 1, nw se se 24-15-20w, spudded and sd. Brown's Gestner 1, nw se nw, 13-13-18w, dr 1350 ft. Burger et al's Hadley 1, c sw sw nw 20-11-17w, spudded and sd. Brouck's Wagner 1, c se se 35-15-16w, dr 3385 ft. Phillips' Schmeidler 1, nw cor 20-12-17w, dr 3140 ft. T. C. Johnson's Robbins 1, sw nw 15-14-16w, rig burned, td 1040 ft. Phillips' Johnson 1, sw ne 9-13-19w, dr 2680 ft. Phillips' Dechant 1, ne se 12-13-16w, dr 1990 ft.

GREENWOOD COUNTY—P. H. Balieu's Bright 1, ne sw 22-27-12e, sd 1210 ft.

GEARY COUNTY—Wright et al's Younkers 1, nwc ne 17-11-5e, dr 1560 ft.

GRAHAM COUNTY—Gulf Coast's Johnson 1, swc sw se 27-8-15w, sd 2450 ft.

HARPER COUNTY—Amerada's Mendiville 1, c se se 24-34-6w, dr 4785 ft.

HARVEY COUNTY — Margaret Gay Oil Co.'s Grouse 1, nw ne nw 29-33-1w, sd 2100 ft. Helmerick & Payne, Lindamood 1, c sw ne sw, 2-22-1e, dr 3070 ft. Empire's Tangeman 1, c sw ne ne, 19-22-1e, dr 3250 ft. R. F. Garland's Cox 1, ne cor 27-24-1w, hfw 3517-28 ft. Hartman & Skaer, Seaman 1, c nw ne se, 26-24-1e, dr 2545 ft. Roth & Fauret's Bombrowsky 1, nwc 26-22-1e, dr 700 ft. Jolly & Ogg's Randall 1, nec 11-24-1w, fsh 2945 ft. Patton et al's Buning 1, c se sw ne 18-24-1e, sd 1250 ft. Jolly & Ogg's Hupp 1, se ne 22-23-1w, fsh 1395 ft. Fisher & Lauck's Regier 1, nw ne 17-23-2e, dr 2951 ft. Rosenthal et al's Ingalls 1, e nw sw, 24-33-3w, dr 1360 ft. Slick & Connell Oil's Gatz 1, nw se 36-22-1e, dr 405 ft.

Independent & Reserve's Moulds 1, c ne 7-24-1w, rig.

JACKSON COUNTY — Garvin & Morton's Lutes 1, sw nw nw, 27-7-15e, dr 2400 ft.

JEFFERSON COUNTY—Wichita Oil Co.'s Simpson 1, nw sw sw, 19-10-17e, ru and sd.

KIOWA COUNTY—Wilcox O. & G. Co.'s Woodward 1, nec 35-27-17w, dr 980 ft.

LANE COUNTY — Blankenship Pet. Co.'s Shaeffer 1, nec ne 24-16-28w, spudded and sd. Robinson et al's Dickerson 1, swc nw se, 11-12-27w, 8-inch csg 2625 ft.

MARION COUNTY — Connell & Prairie's Zirak 1, se sw 3-18-3e, dr 1900 ft. Meyer's Papp 1, sw ne 10-18-2e, dr 2750 ft. Hartman & Skaer & White Eagle's Kline 1, ne nw 28-12-3e, sd 2270 ft. General Utilities' Propp 1, c ne se sw, 8-19-4e, rig. Hanna's Pankratz 1, ne ne sw, 13-20-3e, rig. General Utilities' Burkholder 1, csl n½ se 8-19-3e, dr 1840 ft. Moore et al's Miller 1, nec 26-19-1e, dr 1045 ft. Empire's Scully 1, c sw ne 28-19-2e, spudded.

MARSHALL COUNTY — Irwin et al's Cooper 1, ne nw 10-3-7e, dr 1200 ft.

MORRIS COUNTY—Hiatt et al's Blythe 1, nw ne 35-15-5e, sd 1530 ft.

McPHERSON COUNTY—McPherson County Gas Co.'s Rasmussen 1, swc 8-18-3w, spudded and sd. Ted Washabaugh's Vosshell 1, ne ne 9-21-3w, dr 2981 ft. Mid Kansas' Yoder 1, c nw sw 8-20-4w, ur 6-inch csg 3655 ft. Lariaux et al's Martinson 1, ne se 9-19-3w, rig. Helmerich & Payne's Rusen 1, c ne se sw, 23-21-2w, sd 450 ft. Tatlock et al's Meyer 1, c sw sw ne 32-20-1w, dr 550 ft. McPherson's Reitz 1, nw se sw 1-20-2w, dr 410 ft. Merriman & Shydell's Shindberg 1, c se nw, 18-19-2w, dr 120 ft.

NESS COUNTY—Barnsdall's Lauck 1, c sw 35-18-21w, dr 3675 ft.

OTTAWA COUNTY—Anderson et al's Bank 1, ne nw 29-10-2w, dr 3370 ft.

OSBORNE COUNTY — Trees' Payenter 1, c ne se se, 22-6-15w, dr 300 ft. Jervis' Jellison 1, sec 13-10-13w, dr 2635 ft. Empire's Crest 1, se ne 30-9-14w, dr 2915 ft.

PAWNEE COUNTY—F. C. Troupe's Lovett 1, cel ne ne 31-21-16w, sd 1560 ft.

PRATT COUNTY—Jones & O'Haver, Lunt 1, csw nw 15-28-14w, sd 300 ft.

PHILLIPS COUNTY—Watsonian Oil Co.'s Marklein 1, ne sw 21-3-19w, dr 3920 ft. Watsonian & British American's Weiman 1, c sw sw, 34-2-19w, dr 1820 ft.

RENO COUNTY—Perry et al's Oswald 1, ne ne se 30-22-5w, fsh 2340 ft. Austin Drlg. Co.'s Strickey 1, swc nw 12-26-5w, dr 1190 ft.

RICE COUNTY — Allison & Fitzwilliams' Poland 1, ne sw ne 36-19-8w, cellar. Higgins & Steinbuble, Shurr 1, ne sw 21-20-10w, sd 1820 ft.

RILEY COUNTY—Grey et al's Smith 1, ne se 30-6-6e, ru. Derby-Skow Bros.-Ritchey's Lindstrum 1, nec 32-7-5e, mach.

ROOKS COUNTY—Krueger et al's Steis 1, c nw se sw 12-9-16w, spudded and sd. Burford & Brimm's Toxe 1, ne sw se 22-9-17w, spudded and sd. Prairie's Gick 1, c se 22-9-18w, dr 2925 ft.

RUSH COUNTY—Danciger O. & R. Co.'s Pinonka 1, c ne sw ne, 17-19-17w, dr 2065 ft. Central Commercial's Brock 1, nec sw sw 12-17-16w, spudded and sd. Phillips' Legleiter 1, c ne nw se 10-16-18w, 3 mil gas 3570 ft. Barnsdall's Brock 1, c se se 27-17-17w, spudded. Danciger's Swindt 1, swc 22-17-17w, dr 540 ft. Wilcox O&G Co,'s Schwartz Roph 1, c ne nw sw, 27-17-17w, dr 980 ft. Sinclair's Seur 1, c se nw nw 8-18-17w, rig.

RUSSELL COUNTY — T. B. Slick's Sellans 1, sw ne 36-15-13w, dr 320 ft. Phillips' Solback 1, se nw 33-12-14w, rog. Allison & Fitzwilliams' Mohenny 1, nw se 5-14-12w, rig.

SALINE COUNTY—M. Esty et al's Peterson 1, c ne 6-16-5w, spudded and sd. Nathan-Jones et al's Robertson 1, nw sw 27-14-2w, dr 3571 ft. Kenning Coastal Co.'s Beal 1, c 23-14-5w, dr 1795 ft. Boyle et al's Miller 1, swc se 21-16-1w, sd 2615 ft. Dixie Oil Co.'s Muir 1, c sw se sw, 6-15-2w, ru.

SEDGWICK COUNTY—Magnolia's Wise 1, nwc 36-22-1w, drlg by bailer 2700 ft. Producers Oil Co.'s Jones 1, c sw ne se 31-26-2e, 8-inch csg 2312 ft. Hawkins' Murfie 1, c sw 4-25-1w, dr 480 ft. Hartman & Skaer & Carter's Hitchinson 1, c se se sw 23-28-2w, dr 2440 ft. Morgan & Tilley's Fitzgerald 1, nw ne 5-26-1w, sd 800 ft. Slick's Rosenhagen 1, c sw se ne, 33-27-4w, dr 1410 ft. Blankenship & Washoma's Tuttle 1, sw nw 1-27-1e, 10-inch csg 1805 ft. Connell Oil Co.'s Gross 1, ne cor 27-25-1w, sd 2730 ft. Kroder et al's Harden 1, sw nw sw 20-26-1e, sd 1100 ft. Morgan et al's Corn 1, sw ne 28-25-1w, dr ur lugs 3260 ft. Jones & Kirk's Sheppard 1, c se ne 4-25-1e, dr 2720 ft. Kyser et al's Stroot 1, sw nw 28-26-1w, dr 3760 ft. H. H. Patton's Ryder 1, nec 22-25-1e, td 3580 ft, hfw, dry and abn. Lario & Blair's Tjaden 1, c ne se, 22-29-2w, dr 3090 ft. Maglason's Buckles 1, nw se 3-28-1w, sd 250 ft. Ramsey's Schuessler 1, swc 1-25-1e, dr 3335 ft. Miller & Wentz's Shaeffer 1, nw ne 9-27-2w, dr 1736 ft. Lewis et al's Taylor 1, nw ne 23-27-2e, ur 6-inch csg 2862 ft. Washabaugh's Harrison 1, c nw ne ne, 3-26-2w, sd 350 ft. Hammond & Stout's Roeder 1, sw nw 23-27-2w, rig. Connell & Slick's Mahannah 1, c ne se se 3-25-1w, co 1460 ft. Empire's Henderson 1, swc 35-25-4w, ru. Sullivan et al's Skelly 1, c nw ne se 32-29-2e, hfw 2340-2410 ft. Reynolds & Roger's Uudegraft 1, c se sw se, 26-25-1w, rig. Twist et al's Armstrong 1, ne nw 28-26-1e, spudded and sd. Patton & Wentz's Swanson 1, nw ne 6-26-2e, dr 1760 ft. Twist et al's Joseph 1, 4-25-1w, co 1160 ft. Tatlock et al's Cook 1, swc 25-28-2e, ur 10-inch csg 2035 ft. LaFont et al's Carlton Bros.' 1, c se se sw 24-28-1e, spudded. Frank Wehn's Wilson 1, c ne nw se, 9-26-1w, rig. Shell's Lygrisse 1, se ne, 15-26-2e, ur csg 3054 ft td. Burnett O&G Co.'s Davidson 1, c nw nw sw 27-26-1e, spudded and sd.

SHERMAN COUNTY — A. L. Henson et al's Murray 1, ne se nw, 22-7-40w, sd 3035 ft.

SMITH COUNTY—Mid Kansas's Lambert 1, nec 4-2s-13w, dr 3350 ft.

STEPHENS COUNTY—W. Sidwell et al's Kelly 1, sw ne 16-34-38w, dr 1310 ft. Trees Oil Co.'s Unknown 1, sw ne sw 3-35-38w, dr 500 ft.

SUMNER COUNTY—Gypsy's Williams 1, nw se sw 16-35-3w, 5-inch csg 4760 ft. Davidson et al's Strickland 1, sw se 12-35-1w, rig. Marland's Curry 1, nw sw 26-34-2e, dr 2110 ft.

TREGO COUNTY—Central Commercial Oil Co.'s Ellis 1, ne sw ne, 20-13-21w, dr 3748 ft.

WASHINGTON COUNTY—McCool & Vincent's Linn 1, nw ne 27-4-3e, ru.

OKLAHOMA

GRANT COUNTY—T 28n, R 3w, Sec. 24, Lario O&G Co. et al's Conneil 1, nwc, sd 3960 ft.

WOODS COUNTY—T 27n, R 16w, Sec. 33, Sinclair's Share 1, c ne sw, rig.

KAY COUNTY—T 26n, R 2e, Sec. 32, J. A. Vincent & Nat'l Union's McNeil 1, nwc ne, sd 2795 ft.

HARPER COUNTY—T 25n, R 22w, Sec. 14, Hoffer Oil Co.'s Cooper 1, nwc se, sd 4182 ft.

WOODS COUNTY—T 25n, R 15w, Sec. 10, Bu Vi Bar et al's 1, sec sw, dr 4810 ft.

GRANT COUNTY—T 25n, R 4w, Sec. 22, Cowden's Vollner 2, nec se ne sw, lost tools 5640 ft, sd.

WOODWARD COUNTY — T 24n, R 17w, Sec. 32, Otstot Dev. Co.'s Simmons 1, sec, sd 1500 ft.

WOODS COUNTY—T 24n, R 13w, Sec. 18, Miller et al's Capenhaver 1, nwc, spudded and sd.

ALFALFA COUNTY—T 24n, R 11w, Sec. 14, Washoma Oil Co.'s Acre 1, swc ne, rig.

GARFIELD COUNTY—T 24n, R 6w, Sec. 9, Pulse & Beamer's White 1, sec nw, co to ur 6-inch csg.

WOODWARD COUNTY—T 23n, A 20w, Sec. 9, Billy Oil Co.'s Wyatt 1, c se, sand 3200-40 ft, hfw, sd 3612 ft. T 23n, R 17w, Sec. 2, John Farrand's Belva 2, csl sw se, sd 400 ft, fsh job.

MAJOR COUNTY—T 23n, R 16w, Sec. 4, Wilson et al's Creech 1, nec sw, sd 510 ft.

WOODWARD COUNTY—T 21n, R 21w, Sec. 25, Sharon's Elmore 1, swc, sd 3025 ft. T 21n, R 19w, Sec. 15, Burgoyne Bros. 1, swc se ne, sd 1950 ft.

MAJOR COUNTY—T 20n, R 14w, Sec. 23, Keller et al's Horton 1, c ne ne, spudded and sd.

GARFIELD COUNTY—T 20n, R 4w, Sec. 9, Marland's Looman 1, nec se, sd 5738 ft. Sec. 12, Marland's Miller 1, swc, sd 4586 ft, hfw.

BLAINE COUNTY—T 19n, R 10w, Sec. 13, C. E. Love et al's Phillips 1, c nw sw, spudded and sd.

DEWEY COUNTY—T 18n, R 15w, Sec. 9, Huckleby & McCoy's Perfect 1, nec, sd 4500 ft.

LOGAN COUNTY—T 18n, R 3w, Sec. 33, Healy & Consolidated Drlg. Co.'s Quier 1, sec sw, sd 3970 ft.

KINGFISHER COUNTY — T 16n, R 6w, Sec. 27, Crawford & McKenna's Sturgeon 1, nec sw, sd 4895 ft.

CANADIAN COUNTY—T 14n, R 6w, Sec. 9, A. D. Spears' Piatt 1, swc ne, sd 3223 ft.

OKLAHOMA COUNTY—T 13n, R 3w, Sec. 18, Slick & Bailey's Lufkin 1, c ne se, ur 5-inch at 5120 ft.

CIMARRON COUNTY—T 5n, R 5 ECM, Sec. 22, Magnolia's School Land 1, c se ne, dr 2640 ft.

TEXAS COUNTY—T 1n, R 15 ECM, Sec. 25, Skaer et al's Hitch 1, nwc, rigged up and sd.

OSAGE COUNTY—T 26n, R 7e, Sec. 13, Wrightsman's 1, sec nw, lcn.

PAWNEE COUNTY—T 22n, R 5e, Sec. 33, Washoma O&G Co.'s Buffalo 1, sec nw, td 3812 ft, pb to 3134-36 ft shot 14 qts., pump 10 bbls oil, 6 bbls water, 35 grav.

OSAGE COUNTY—T 22n, R 8e, Sec. 8, Harry McGill's 1, swc se, show gas at 2335-49 ft, dr 3025 ft.

LINCOLN COUNTY—T 16n, R 4e, Sec. 15, J. V. Bailey et al's House 1, c ne se, dr 3830 ft. T 16n, R 5e, Sec. 2, L. G. Wheeler Mote, et al's Wolfe 1, nwc ne sw, dr 3535 ft. T 16n, R 6e, Sec. 19, Flynn & Morgan's Finely 1, swc, ur 720 ft of 15½-inch. T 12n, R 3e, Sec. 29, Phillips' Robertson 1, sec nw, rig.

McINTOSH COUNTY—T 12n, R 18e, Sec. 15, A. B. Wolfe et al's Beck 1, nwc se, spudded and sd.

PITTSBURG COUNTY—T 9n, R 16e, Sec. 32, Pattison et al's McDuff 1, swc nw se, Wilcox 5443-74½ ft, drilling but making no hole.

HASKELL COUNTY—T 9n, R 18e, Sec. 10, Marion Oil Co.'s Sanders 1, nwc ne sw, sd 1800 ft.

LATIMER COUNTY—T 5n, R 18e, Sec. 15, Limestone O&G Co.'s Murry 1, swc, 1½ mil gas at 2518-30 ft, dr 3530 ft.

OKLAHOMA COUNTY—T 12n, R 2w, Sec. 30, Magnolia's Noble 1, nwc sw sw, dr 3900 ft. T 12n, R 3w, Sec. 15, Cromwell's Thompson 1, swc ne ne, fsh 7182 ft, sd.

OKFUSKEE COUNTY—T 11n, R 7e, Sec. 21, Slick's Wolfe 1, sec ne se, dr 4585 ft.

CLEVELAND COUNTY—T 10n, R 2w, Sec. 8, Slick & Phillips' Sudik 1, c ne ne, dr 5581 ft.

SEMINOLE COUNTY—T 10n, R 6e, Sec. 16, McCulloch et al's Hollis 1, sec nw, show oil 4304 ft. T 10n, R 7e, Sec. 5, Marland et al's Strothers 1, nwc se ne, td 4942 ft, hfw, pb to 4610 ft.

SEMINOLE COUNTY—T 8n, R 8e, Sec. 4, McCulloch's McGilbray 1, swc ne, ts 3285 ft, dr 3440 ft.

CLEVELAND COUNTY—T 7n, R 1w, Sec. 15, Sooner Oil Co.'s Vandeveer 1, nec nw sw, sd 3120 ft.

POTTAWATOMIE COUNTY—T 6n, R 4e, Sec. 19, Simms Oil Co. et al's Lester 1, sec ne ne, 3650-87 ft, flowing 2000 bbls per day.

SEMINOLE COUNTY—T 6n, R 5e, Eec. 11, McCuloch's Powell 1, nwc, rur sd. T 6n, R 7e, Sec. 34, Magnolia's Harjo 1, nec se, dr 3240 ft.

PONTOTOC COUNTY—T 5n, R 4e, Sec. 36, Denver P. & R. Corp.'s Roberts 1, sec ne ne, dr 2785 ft.

HUGHES COUNTY—T 5n, R 9e, Sec. 17, E. W. Whitney's Huddleston 1, sec sw, ur 5-inch 3660 ft.

PONTOTOC COUNTY—T 4n, R 8e, Sec. 23, Independent's Hampton 1, nec, dr 2000 ft.

PITTSBURG COUNTY—T 4n, R 12e, Sec. 32, Kerr & Kay's Tall 1, c nw nw, fsh 1805 ft.

COAL COUNTY—T 2n, R 8e, Sec. 6, J. S. Cosden's Richardson 1, nwc ne ne, set liner 1460 ft. T 1n, R 9e, Sec. 24, Galbreath et al's Jones 1, swc se, fsh 3350 ft. T 1n, R 11e, Sec. 10, 1T1O's Cook 1a, sec sw nw, dr 6950 ft.

CUSTER COUNTY—T 14n, R 14w, Sec. 1, W. E. Witt's Wellman 1, c se, sd 100 ft.

ROGER MILLS COUNTY—T 11n, R 26w, Sec. 4, L. C. Hivick's Davis 1, c nw ne, sd 700 ft.

CANADIAN COUNTY—T 10n, R 6w, Sec. 1, J. V. Bailey's Robinson 1, c ne nw, spudded and sd.

BECKHAM COUNTY—T 8n, R 25w, Sec. 30, Benedum & Trees Oil Co.'s Rogers 1, swc, dr 1142 ft. T 8n, R 22w, Sec. 20, Carson et al's Denby 1, swc se ne, dr 1380 ft. T 8n, R

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21w, Sec. 33, Day Oil Co.'s Ault 1, c nw nw, dr 150 ft in new hole.

KIOWA COUNTY—T 7n, R 17w, Sec. 34, G. B. Cloyes' Brazil 1, swc ne, sd 1206 ft.

GRADY COUNTY—T 4n, R 5w, Sec. 28, Wichoma Oil Corp.'s Morrison 1, nec, lcn.

JACKSON COUNTY—T 1n, R 20w, Sec. 4, Houseman et al's Northington 1, nec, sd 2020 ft.

KIOWA COUNTY—T 1n, R 17w, Sec. 13, Allen Bros.' Howell 1, nwc se, dr 68 7ft.

STEPHENS COUNTY—T 1n, R 7w, Sec. 2, Stahl & Burris' Jefferson 1, sec ne nw, 3012 ft, dry and abn.

COTTON COUNTY—T 1s, R 11w, Sec. 34, Shasta Oil Co.'s Indian 1, nec, sd 2500 ft.

KIOWA COUNTY—T 2s, R 16w, Sec. 6, Landfair's 1, sec sw se, sd 2535 ft.

COTTON COUNTY—T 2s, R 12w, Sec. 31, Pearce & Brown's Heitzler 1, nwc, sd 2716 ft. T 3s, R 12w, Sec. 11, Consolidated Oil Co.'s Indian 1, nec sw, dr 1627 ft. T 3s, R 10w, Sec. 11, E. J. Stump's Jones 1, nwc ne, dr 1932 ft.

STEPHENS COUNTY—T 3s, R 9w, Sec. 22, Pelwin Oil Co.'s King 1, swc se, sd 520 ft. T 4s, R 9w, Sec. 31, Amerada's Delana 1, sec nw nw, dr 1330 ft.

JEFFERSON COUNTY—T 5s, R 7w, Sec. 35, Amerada et al's Major 1, sec nw nw, lcn.

McLAIN COUNTY—T 5n, R 2e, Sec. 31, Tidal et al's Haberson 1, c se se, dr 3545 ft. T 5n, R 3e, Sec. 22, Mid Continent Pet. Corp.'s James 1, sec, Wilcox 3291-3208 ft, dr 3345 ft.

GARVIN COUNTY—T 3n, R 3w, Sec. 36, Gilcrease-Douglas Oil Co.'s Barnett 1, sec nw ne, sd 2300 ft.

MURRAY COUNTY—T 1n, R 2e, Sec. 17, Revels & McGee's Wolfe 1, show gas 2100-10 ft, ur 6¾-inch.

JOHNSTON COUNTY—T 1s, R 7e, Sec. 29, Smith-Kinsley's Lane 1, sec nw, dr 1660 ft.

CARTER COUNTY—T 4s, R 2e, Sec. 32, Tex-Okla Drlg. Co.'s Anderson 1, sec ne se, sd 420 ft.

BRYAN COUNTY—T 9s, R 9e, Sec. 36, W. G. Endicott et al's Craig 1, c nw ne, cemtg 10-inch 1198 ft, td 1235 ft.

MOUNTAIN STATES

NEW MEXICO

Company, Well and Location	Initial Production Bbls.	Depth
Midwest Refining Co., Farnsworth 13C, 13-26-36e	¶40	3127
Cranfill & Reynolds, Wilson 1, ne 23-25s-36e	45	3355

CHAVES—Snowden & McSweeney's Merchant 1, ne 27-15s-23e, stand cem 4260 ft. R. T. Neal et al's Russell 1, 31-14-25e, fsg 1385 ft. Warman et al's 1, sw 23-13s-24e, sd. Tannehill et al's Butler 1, se 15-21s-24e, dr 895 ft. Transcontinental's Robert 1, 1-14s-28e, dr 1865 ft.

DEBACA—Matador Oil Co.'s State 1, sw 6-4n-20e, dr 630 ft. Pittsburg Oil Co.'s 1, ne 16-1s-27e, dr 4345 ft. Transcontinental's McWhorter 1, 6-35-22e, ur 6½-in. to 3680 ft.

GUADALUPE—Hanchett Oil Co., 2, 14-8n-24e, bit lost at 2400 ft.

LEA—Midwest's Gregory 22, sw 31-25s-37e, ready to spud; Capps 31, sw 3-19s-39e, dr 865 ft; Farnsworth 19, 12-26-37e, dr 4067 ft. Gypsy's Oil Co., Mattern 1, 24-21s-36e, wtg for parts. Exploration Co.'s Record 1, 26-19s-35e, td 4556 ft. Morton et al's State 1, ne 32-11s-38e, dr 1875 ft. Texas' Sheppard 1, ne 6-26s-37e, spray oil 3230 ft., tools lost; Moberly 1, se 17-26e-37e, operations susp. Curtis Dr. Co.'s Nixon 1, 22-18s-34e, sd 1200 ft. Empire & Gas Fuel Co.'s Closson 1, se 6-22s-36e, ready to spud. Texas-Pacific Coal & Oil Co.'s State 1, sw 22-23s-35e, showing oil at 3437 ft. Henderson et al's McDonald 1, se 18-20s-34e, dr 3000 ft. Vacuum Oil Co.'s 1, 14-17-34, dr 2825 ft. Bordages et al's Hughes 1, 27-19s-38e, prep to resume 4012 ft. Pueblo Oil Co.'s Scott 1, se 29-25s-37e, sidetr tools 2658 ft. Rector Oil Co.'s King 1, sw 27-25s-32e, rig up. Maljamar Oil & Gas Corp.'s Simon 1, ne 29-17s-32e, bldg road to location. Ohio Oil Co.'s State 1, sw 9-19s-38e, prep to spud.

McKINLEY—J. W. Halsell's Santa Fe 1, 17-18n-9w, dr f140 ft. San Juan Coal & Oil Co.'s 1, se 27-18n-9w, dr 700 ft.

ROOSEVELT—J. T. Keegan et al's Pepper 1, 6-1s-36e, ready to spud. Smith & Sloan's Lovern 1, se 4-3s-35, dr 900 ft.

RIO ARRIBA—Berringer et al's Hartman 1, ne 8-29n-7w, co 520 ft.

SAN JUAN—Continental Oil Co.'s Munoz 17, 2-29-19, show much oil, will ur 4¾-in. below 6730 ft. Dorothy Oil Co., 29-30-9, mvg in new equipment, 712 ft. Kutz Canon O. & G. Co.'s Day 1, 29-28-11, stand 722 ft. Blackrock Oil Co.'s 1, sw 11-25s-13w, sd 1550 ft. Iowa Oil Synd.'s Viles 2, 28-29-11, sd 694 ft. Angel Peak Oil Co.'s Kutz Canon 1, 11-28n-11w, td 2965 ft. Great Mesa Oil Corp's Roderick 1, sw 11-22n-14w, sd 215 ft. Milwaukee-N. M. Synd.'s Beardsley 1, 30-28-11w, td 1700 ft, wait cable. Childers D. & P. Co.'s Westwater 2, nw 24-31-18w, dr 2300 ft.

SAN MIGUEL—Benedict-Wilson's 1, ne 25-17n-16e, sd 800 ft. Pioneer O. & G. Co.'s Thunderbird 1, nw 14-15n-16e, dr 1830 ft. Starr Oil Co.'s Adams 1, ne 25-17n-16e, dr 500 ft.

SOCORRO—Arnold et al's 2, ne 13-6s-1w, fsg 1715 ft.

TORRANCE—Bluhall O. & G. Co., 20-6n-10e, dr 1780 ft. Hall et al's Pinos Wells 1, sw 25-3n-13e, stand 400 ft. Sinnock et al's Kutchin 1, ne 13-7n-7e, dr 117 ft.

VALENCIA—Rio Puerco Oil Co.'s N. M.-Ariz. Land Co. 2, nw 13-6n-2w, wait pipe 3145 ft. Acme Oil Co.'s N. M.-Ariz Land Co. 1, 26-6n-3w, dr up cas. shoe.

COLORADO

ARCHULETA—Juanita Oil Co.'s Harvey 1, sw 4-32n-3w, stand 735 ft, bad roads.

BENT—Marland Oil Co.'s Pipe Springs 1, se 27-29s-49w, sd 3987 ft.

ELBERT—Progressive O. & L. Co.'s Pease 1, sw 27-10s-60w, spd 70 ft.

JEFFERSON—Ruby Hill O. & G.'s Braden 1, se 14-4s-69w, dr 1740 ft.

LAS ANIMAS—Parker Club-Kinney Coastal, 4-28s-68w, cas 3008 ft. Okla.-Colo. O. & G. Co.'s Doherty 1, sw 32-34-60w, dr 1000 ft, much water in the hole.

LARIMER—Barrows et al., 7-11s-68w, sd 2000 ft.

LA PLATA—Royal P. & R.'s Red Mesa 1, 27-33n-12w, sd 650 ft.

LINCOLN—Kelly Oil Co.'s State 1, ne 36-14s-57w, stand 1600 ft.

MESA—Peerless Oil Co.'s Hoel 1, ne 23-8s-104, dr 2175 ft. Parrish & Langston, D. & R. G.'s Western 1, nw 23-1s-1w, dr 417 ft.

MOFFAT—Mtn. Fuel Supply Co.'s State 1, 16-12-100, fsg 3585 ft, td 3600 ft. McLaughlin et al's Wms. 1, 2-3n-91w, dr 3310 ft. McCormick et al's Sales 1A, se 28-4n-92w, spd 15 ft and sd.

MONTROSE—Uncompaghre O. & G. Co.'s Colorado Title & Trust 1, 27-50n-10w, dr 1985 ft.

PUEBLO—Rozella Oil Co.'s Shaw 1, nw 3-22s-63w, pipe trouble, probably will abn. Christopher Oil Synd.'s Stanbeck 1, nw 19-22s-63w, dr 1070 ft. Christy-Frantz Corp., Mannerich 1, sw 34-21s-63w, sd 1130 ft. Windle et al's Alber 1, se 6-22s-63w, ready to spud. Sheffer et al's 1, se 4-22s-63w, dr 1040 ft. Security Oil Trust's Buch 1, nw 14-22s-63w, sd 565 ft. G. E. Stevenson et al's Isis 1, ne 1-23-63, dr 490 ft. Sundance Oil Co.'s Lubers-Oliver 1, 35-21s-63w, will skid rig.

RIO BLANCO—White Eagle O. & R. Co.'s Fordham 1, sw 9-2s-86w, sidetr lost bit, td 519 ft.

YUMA—Major Pete., Inc.'s Black Wold 1A, sw 7-2s-43, ready to spud.

WELD—Platte Valley Pete. Corp.'s Patterson 1, sw 23-8n-61w, making repairs, co 4180 ft.

SOUTH LOUISIANA

ASCENSION PARISH—Gulf's United Lands Co. 14, Sorrento, dr 1270 ft. Belle Helene Sugar Co. 1, Darrow, dr 4440 gbo. Triumph Oil Corp's Lacey 2, 3 mi se Sorrento townsite, depth 2100 ft. Big Dome Drlg. & Dev. Co.'s and J. S. Kimbrough's Rearwood 1, Darrow, sd 3005 ft. Baton Rouge Pet. Co.'s Liotta 1, sd 1000 ft.

CALCASIEU PARISH—Gulf's Ind. Lbr. Co. 13, Starks, dr 3890 ft; Lutcher Moore 9, Starks, dk; Lutcher Moore 15, Starks, dr 3975 ft; Lutcher Moore 14, Starks, dr 4270 ft. The Texas Co.'s Moss 1, sect. 8-10s-9w, dk. Union Sulphur Co.'s Fee 736, Sulphur, prep to deepen, td 5100 ft; Fee 742, Sulphur, no rept. J. O. Davis' Mimms 1, Lake Charles, dr 932 ft.

CAMERON PARISH—Pure Oil Co.'s Yount-Lee 7, Sweet Lake, oil shg 4785 ft; Yount-Lee 8, Sweet Lake, oil shg 5181 ft. Calcasieu Oil Co.'s Valery 6, dr 3940 ft. The Texas Co.'s Calcasieu Lake A-3, S. Calcasieu Lake dome, ru. Rycade Oil Corp-Humble's Gulf Land 1, Hackberry, dr 3989 ft; Gulf Land 2, dr 3110 ft. Cameron Oil Co.-Rycade's Duhon 4, Hackberry, dr 1275 ft; Kaough 1, prep to deepen 3055 ft. Cherokee Oil Co.'s Duhon 1, E. Hackberry, cas at 3527 ft. Moon Oil Co.'s Sanner 3, Hackberry, no rept. Sun Oil Co.'s Vincent 1, Hackberry, no rpet; Vincent 2, no rept. Rex Pet. Corp.'s Noble 2, Hackberry, dr 3315 ft. Sunshine Oil Co.'s Benoit 1, Hackberry, surface casing 1059 ft. Shell Pet. Corp's Watkins 6, Black Bayou, standing cemented 4507 ft; Watkins 9, failed drk 981 ft, prod. 38 bbls, 1% water.

IBERIA PARISH—The Texas Co.'s Vermillion Bay A-3, dr 4610 ft. Gulf's State Z-9, Loureauville, lcn. Moresi Co. et al's 1, dr 3430 ft.

IBERVILLE PARISH—Shell's Wilbert 3, White Castle, dr 4215 ft sandy shale and lime. Standard of La.'s Wilbert 2, Bayou Blue, surface casing; Wilbert 3, ru; Schwing 1, no rpt; Schwing 2, ru; Schwing 3, dredging canal; Schwing 4, lcn; Schwing 5, bldg rig.

JEFFERSON DAVIS PARISH—Vacuum's Earl 1, Roanoke, sd 5685 ft; DeVilbiss 1, Roanoke, sd 5903 ft.

LA FOURCHE PARISH—Gulf's Stark 10, no rpt; Stark 11, dr 670 ft. Union Sulphur Co.'s Dibert-Stark-Brown 1, Thibodaux, no rpt; Dibert-Stark-Brown 4, no rpt.

PLAQUEMINES PARISH—Gulf's Morris & Rose 1, Spanish Pass, dk. The Texas Co.'s Garden Island Bay 1, 15 mi se Venice, ru.

POINTE COUPEE PARISH—Miller et al's Kornbacker 1, sd 1925 ft. Fruen et al's La Cour 1, ru and sd.

ST. LANDRY PARISH—Elbof Explorations, Inc.'s Henry Smith 1, no rpt.

ST. MARTIN PARISH—Rycade's State 3, Bayou Bouillon, fsh 3315 ft; Bayou Bouillon Fee 7, dr 1630. Ohio Oil Co.'s Martin et al 3, Hager dome, standing 4490 ft; Burke 3, dk. The Texas Co.'s St. Martin Land Co. 1, Hager dome, sur cas 1233 ft; St. Martin Land Co. Fee 2, bldg rig.

ST. MARY PARISH—J. McMurrey et al's Le Blue 1, Charenton, sd 3100 ft.

TANGIPAHOA PARISH—Tanli Oil Co.'s Weinberger 2, sd 4050 ft. Joan Dev. Co.'s Lake Superior Piling Co. 1, sd 220 ft. The Texas Co.'s Lake Barre 1, dr 1610 ft; Lake Pelto B-1, bldg dk; Four Isle Bayou B-1, bldg dk; Timbalier Bay A-1; bldg drk; Bay Coon Road B-1, bldg dk; Dog Lake A-1, sur cas 137 ft.

ARKANSAS

ASHLEY COUNTY—Atlantic O. P. Co.'s Bledsoe 1, 20-15-7, washing to bottom, td 2554 ft.

BRADLEY COUNTY—Ohio Oil Co.'s Sou. Lbr. Co. 2, 19-16-9, trying to wash to bottom, td 3217 ft.

CALHOUN COUNTY—Phillips Pet. Co. et al's J. W. Kline 1, 28-16-12, lcn. Eagle Mills Lbr. Co. 1, 11-16-12, lcn.

CLARK COUNTY—Wm. Henry, Tr.'s, Clark 1, 34-9-21, sd 1385 ft.

CRAWFORD COUNTY—Industrial O. & G. Co.'s Brownlee 2, 22-9-31, lcn.

COLUMBIA COUNTY—G. W. Dawley et al's Fullenwider & Kitchen 1, 12-17-22, sd wo 2847 ft. Helena O&G Co.'s Pickler 1, 19-19-22, dr hard sandy lime 2390 ft.

CHICOT COUNTY—W. S. Smith's Meyer 1, 19-19-2, sd wo 850 ft. Joe Crawford's Cashion 1, 14-18-2, ds stuck 2330 ft.

DALLAS COUNTY — Robt. H. Dedman's Hillman 1, 20-10-13, temp abn td 1145 ft.

DREW COUNTY—McClintock & Goedke's Ogle 1, 35-13-5, old well trying to clean, td 2530 ft. Ohio Oil Co.'s Jerome Lbr. Co. 1, 13-15-4, dr 3255 ft.

FAULKNER COUNTY—Gold Creek O. & G. Co.'s Stermer 1, 17-4-13, temp abn, td 3462 ft.

FRANKLIN COUNTY — Ozark Nat. Gas Co.'s McElroy 1, 15-8-27, lcn.

GARLAND COUNTY—H. H. Given's Garrett 1, 1-3-19w, dr 2988 ft. Chaywood Oil Co.'s Malvern Lbr. Co. 1, 17-2-17, sd wo 1665 ft.

GRANT COUNTY—Jones & Watkins' Meek 1, 5-4-11, sd 1400 ft.

JOHNSON COUNTY — Ark. Nat. Gas Corp.'s Bynum 2, 12-10-24, shot bit 2500 ft, r to bottom, td 2500 ft; McPherson 1, 10-10-24, repr rig, td 3345 ft.

LITTLE RIVER COUNTY—Grote et al's Allen 1, 21-12-13w, sd 2941 ft.

LOGAN COUNTY — Ark. La. Pipe Line

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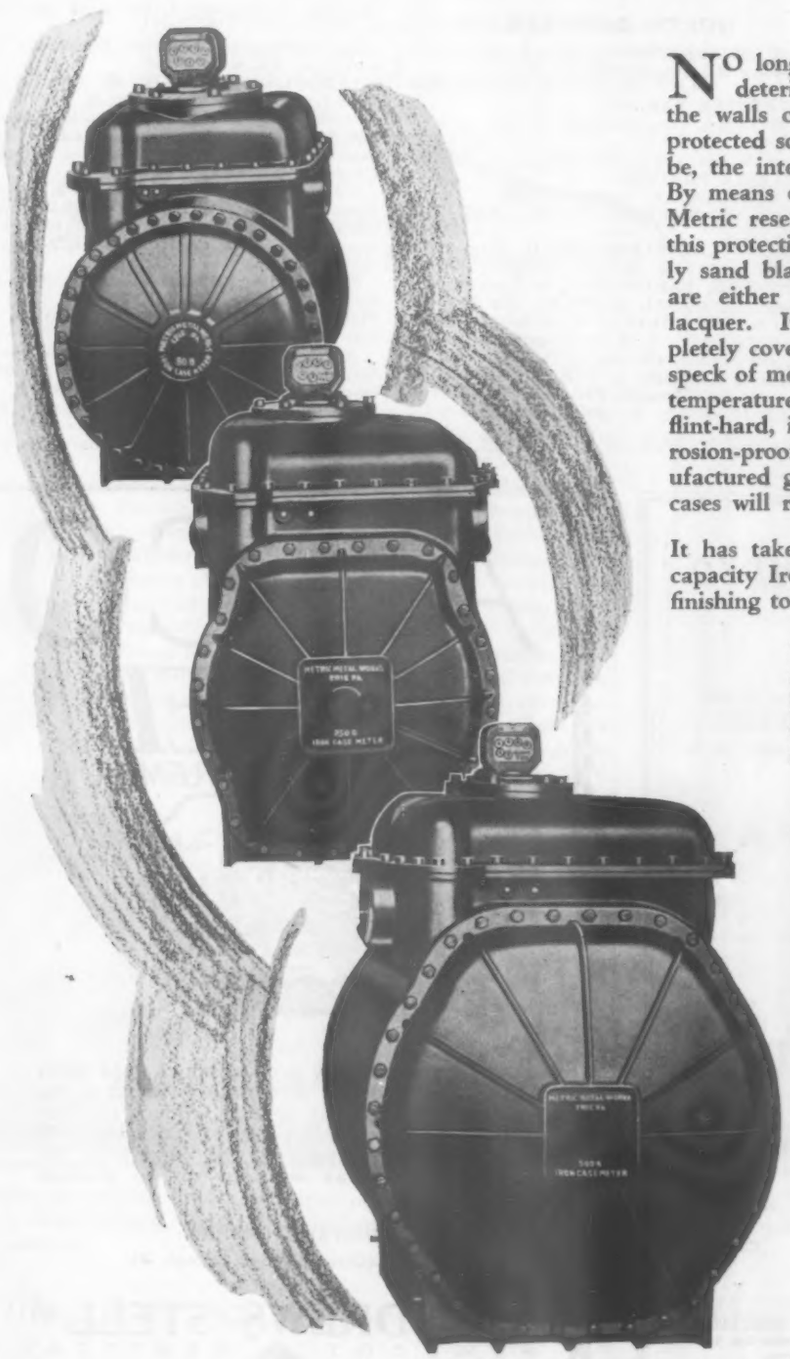

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Co.'s Hanna 1, 26-7-23, dr 1210 ft. Ark. Nat. Gas Corp.'s W. H. Parks 1, 26-8-24, pulling cas to abn, td 4600 ft.

OUACHITA COUNTY — McDonald Bros.' Wilson A-1, 25-15-18, pumping 81 bbls, 2 per cent water, td 2873 ft (corrected). Charles McDonald's Wilson B-2, 25-15-18, coring 2354 ft. Magnolia Pet. Co.'s C. M. & K. Wilson 1, 25-15-18, cored red shale 2759 to 2763 ft, coring 2781 ft. Atlantic O. P. Co. and E. M .Jones' Allen A-1, 25-15-18, tested 235 ft sw in 10 minutes through ds 2849 to 2859 ft, tested 500 ft sw through ds in 15 minutes, 2860 to 2866 ft, coring 2988 ft. Root Ref.'s Wilson 1, 25-15-18, fsh 1800 ft, 6⅝-in cas dropped in hole while trying to set, td 2844 ft. Flaucher et al's Bucks 1, 7-15-17, tested one fourble salty drill water through ds 2260-70 ft, dr 2475 ft. Cumberland Pet. Co.'s Burton 1, 24-15-18, set 10-inch csg 78 ft, dr 950 ft. Timberlake et al's Wright 1, 25-14-18, topped Nacatosh 1762 ft, arr ds test 1784 ft. Geo. Kouri et al's Henson 1, 24-15-18, lcn. L. L. McDonald et al's Crowley 1, 27-15-18, dk pat.

ST. FRANCIS COUNTY — W. F. Harris' Halbert 1, 32-4-4, lcn.

UNION COUNTY—Sundby et al's Yocum 1, 29-16-17, preparing to run testing tool test two ft sand showing oil, 2726-2728 ft. Hawthorne O&G Co.'s Smith 1, 8-16-17, coring 2788 ft. La. Oil Ref. Corp.'s Manley 1, 15-15-19, dr 3475 ft. Foster et al's Murphy Land Co. 1, 22-17-17, sd 1400 ft. J. O. Moore, Tr.'s Union Sawmill 1, 11-18-12, dr 2760 ft. Carter Bell et al's Terrell 1, 27-18-14, sd 2594 ft. Wesson et al's Booth 1, 12-15-19, dr 1575 ft. J. P. Hawkins et al's Goodwin 1, 6-17-15, sd 1204 ft. McDonald Bros.' Mayfield 1, 29-19-15, sd 2200 ft. Standard Oil Co.'s J. R. Burns 5, 31-17-15, fsh joint liner, td 2256 ft. Goodwin 1, 36-17-16, dk. Grimes Bros.' Hill 2, 7-18-14, rig up wo. J. C. Marcum's DeYambert 1, 5-19-4, r to bottom, td 3312 ft. W. M. Coates, Tr.'s McDuffie 1, 32-19-16, sd 142 ft. J. W. Olvey's Cottrell 1, 22-19-17, dr 3045 ft. Gulf Ref. Co.'s Rosa L. Cook 1, 1-18-15, tested 200 ft sw in five minutes ds test 3140-3153 ft, coring 3184 ft. Gaddy 2, 30-17-14, will kill as gasser at present, td 2859 ft to drill deeper for oil.

EAST TEXAS

Company, Well and Location	Initial Production Bbls.	Depth
MARION COUNTY—		
Trimount Pet. Co., Mabane-Stiles A1, Gupton sur	15	2365

BOWIE COUNTY—Hooks O. & G. Co.'s Rosenberg 1, King sur, temp abn, td 3086 ft.

CAMP COUNTY—Rogers et al's Enfelt 1, Montgomery sur, sd 1920 ft.

MARION COUNTY — Trimount Pet. Co.'s Mebane-Stiles 1, Gupton sur, pumping 15 barrels oil td 2365 ft.

RED RIVER COUNTY—D. M. Buffington's Hoosier 1, Hughart sur, sd 1565 ft. Shad Harper's Garland 1, Jos. Wagley sur, sd wo 1862 ft. Johnson Pet. Co.'s Randolph 2, Dean sur, sd wo 1440 ft.

SHELBY COUNTY — Chapparal Oil Co.'s Holt 2, Matthew Moore sur, sd wo 3004 ft. Gulf Ref. Co.'s Caraway 1, Patterson sur, dr grey sandy lime and blue, brown shale 3930 ft.

NORTH LOUISIANA

DE SOTO PARISH—		
Benedum & Trees, Nicholson 1, 2-15-14	*	2975
WEBSTER PARISH—		
J. W. Clark, Tr., Mayfield 2, 20-23-9	40	2771
Harry Morris, Lewis 1, 15-23-9	*	2902
SABINE PARISH—		
L. M. Moffitt, Tr., (formerly Luke Case, Tr.) Boatright 1, 3-10-13	¶2¾	3069

BIENVILLE PARISH—W. G. Gray, Tr.'s, Snyder 1, 15-16-6w, dk.

BOSSIER PARISH—Nell & Lanier's Biedenharn 1, 23-21-14, sd 790 ft. Big Ben Oil Co.'s Stewart 1, 15-18-12, sd wo 1300 ft. Walker et al's Antrim 1, 28-22-13, re-cemtd 6⅝-inch csg after pulling old csg, td 3019 ft. John F. Woodman's Bolinger 1, 9-22-11, tested sw, sd wo, 3100 ft. Magnolia Pet. Co.'s B. M. Cook 1, 2-22-11, dr 3100 ft. Sallie Coyle 1, 2-22-11, dk.

CADDO PARISH—D. C. R. Oil Co.'s Hunter Est. 1, 17-19-14, arr to drill plug after setting 6-inch cas, 600 ft oil in hole, td 2422 ft. J. O. A. Carper, Tr.'s Hammock 2, 34-18-16, temp abn, td 920 ft.

CATAHOULA PARISH—Lochnager O&G Co.'s Taliaferro 1, 26-9-6e, sd 900 ft.

DE SOTO PARISH — Benedum & Trees' Nicholson 1, 2-15-14, dry abn, td 2973 ft. P. J. Becker's Tull 1, 23-12-15, junked old hole, td 1361 ft, skidding dk over for new hole. Benson O&G Co.'s Jackson 1, 31-10-13, rig up. L. M. Moffitt, Tr.'s, Boatright 1, 3-10-13, 2,750,000 cu ft gas, td 3069 ft (formerly Luke Case, Tr.'s, Boatright 1, lcn, now said to be in Sabine Parish, near line Sabine-De Soto). Carlton Drilling Co.'s Stephens 2, 12-11-16, sd wo 2046 ft. R. O. Roy's Sample 1, 1-13-14, dr 2950 ft. Thorn Oil Co.'s Burford 1, 22-14-14, sd wo 3020 ft. Longstreet Synd.'s Ramsey 1, 33-13-16, set cas, td 2802 ft.

FRANKLIN PARISH—Davis et al's Moore 1, 12-11-6e, sd 1430 ft.

GRANT PARISH — Carter & Collins' Ball Lbr. Co. 1, 29-7-1w, temp abn, td 2410 ft. Hardtner & Tannehill 1, 9-6-1w, dr sand 2125 ft.

JACKSON PARISH—Geo. O. Baird's Tremont Lbr. Co. 1, 24-17-1w.

LINCOLN PARISH—V. E. Shaw et al's Voss 1, 1-20-3w, dr gumbo 2620 ft.

MOREHOUSE PARISH—Woodley & Collins' Harp 1, 22-22-7e, dr volcanic ash and hard sand 2938 ft. Rainbow Oil Co.'s Louisville Cooperage 1, 33-22-8e, dk.

NATCHITOCHES PARISH — S. D. McDaniels' Clark-Morse Lbr. Co. 2, 23-5-6, tested one mil ft gas with sw in 8 ft sand, td 2536 ft. Robeline O. & G. Co.'s Cassady 1, 7-8-9w, dr chalk 2980 ft.

OUACHITA PARISH—Ouachita Nat. Gas Co.'s D'Arbonne B-2, 25-19-2e, sd 3349 ft. Phillips et al's School Fee 1, 16-16-4e, dr 3520 ft.

RAPIDES PARISH — G. E. Silbertson's Willemach 3, 13-5n-4w, sd wo 2250 ft. Glenmora Pet. Co.'s Fee 1, 1-2n-2w, sd 3850 ft.

RICHLAND PARISH—S. C. Wilson's Buie 1, 17-15-7e, sd 1946 ft.

SABINE PARISH — W. J. Garnier's Bow-

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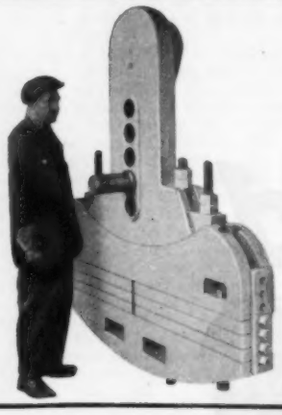

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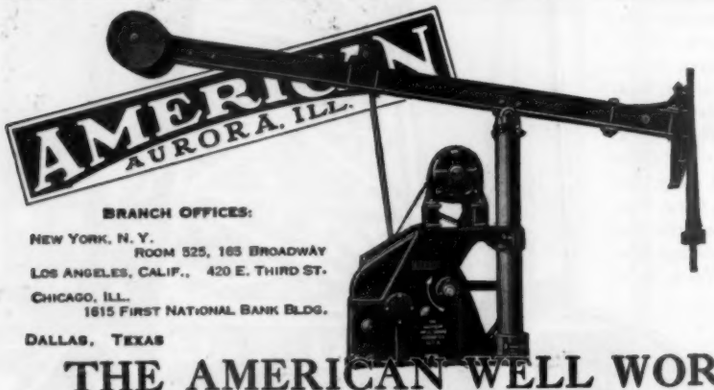

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man-Hicks 1, 16-7-12, sd 625 ft. R. L. Gay, Tr.'s, Bowman-Hicks 2, 14-7-14, run core bbl, td 3332 ft; Bowman-Hicks 3, 14-7-14, dr 1250 ft. Long Bell Lbr. Co. 1, 26-8-14, rig up; Sabine Lbr. Co. 1, 13-7-14, temp abn, td 2936 ft. A. H. Tarver's Long Bell Lbr. Co. 1, 29-8-13, rig up.

TENSAS PARISH—Enochs et al's Curry 1, 39-11-12e, sd 3583 ft.

UNION PARISH—Sundby et al's Security Trust 1, 6-23-1e, sd wo 2300 ft. G. E. Carmatte's Tugwell 2, 21-22-1e, cemtd 6-inch cas 1841 ft. Carter & Wingfield's Clark A-3, 8-23-1e, dk. Security Trust 2, 7-23-1e, lcn. H. C. McDonald's Union Sawmill 2, 18-23-1e, sd 1500 ft. Texas Co.'s F. M. Fuller 1, 9-21-2w, lcn.

WEBSTER PARISH—P. Hudson's Slack 1, 1-22-11, dr 2550 ft. Nemours Corp.'s Munn 2, 1-22-10, tested four mil ft gas 2623 ft; J. W. Clark, Tr.'s, Mayfield 2, 20-23-9, 40 bbls oil pumping, td 2771 ft. Magnolia Pet. Co.'s Atkins 1, 4-22-9, dr 2525 ft. Harry Morris' Lewis 1, 15-23-9, dry abn, td 2902 ft. John F. Woodman's Boyd 1, 3-22-11, dk.

WYOMING

BIG HORN—P. & R.'s 3, 24-56-98, moving in to resume 2709 ft. Prairie O. & G. Co.'s Chilcote 1, 35-56n-95w, abn 3035 ft. P. & R.'s South Frannie 1, 7-57-97, run 8¼-in at 1950 ft. Cody Pet. Co. 1, sw 27-57n-96w, sp. Ohio Oil Co.'s Pulley 2, 27-52-101, rig up.

CARBON—P. & R.', 2-19-88, sd 4003 ft.

CONVERSE—Criterion Oil Co., 5-31-70, ready to resume 3600 ft.

FREMONT—P. & R.'s Muskrat 2, nw 1-33n-92w, lcn. Kinney-Coastal, 22-3n-1w, dr 2500 ft.

HOT SPRINGS—Texas Prod. Co., sw-45n-100w, resuming 1960 ft. MacPherson Oil Co., sw 2-44n-98w, set 5 3/16-in and dr ahead 3317 ft.

LINCOLN—Midwest Refining Co.'s Waterfall 1, 3-22-115, dr ur lugs 2750 ft. O. M. Topley's Sage structure, prep to resume at 450 ft.

PARK—California Exploration Co. and P. & R.'s Pitchfork 1, 12-48n-102w, cemt 20-in at 225 ft. Midwest's Rosenburg 36, 25-58-98, co and ur 2068 ft. Midwest's Kirk 36, se 23-56n-98w, dr 2165 ft. Cody Pet. Co., 1, ne 4-54n-102w, dr 3510 ft. Cody Pet. Co., 1, 16-53-101, bldg rig. Oregon-Wyoming Oil Co., 31-51-101w, sp. Grebo Royalties, 2-47n-100w, sd 1700 ft.

SWEETWATER — Mountain Fuel Supply Co.'s Tucker 1, 18-13-99, sd 2480 ft. Mountain Fuel Supply Co.'s Humphreys 1, 2-12-101, dr 3550 ft. Mountain Fuel Supply Co.'s Otto Arnold 1, 24-19-104, dr 560 ft P. & R. 1, 26-20-104, repair water lines to resume, td 3500 ft.

SUBLETTE—California's Co.'s Wyss 1, 12-32n-115w, wait cas 1608 ft. California Co.'s Buchell 1, 11-29-115w, sd 2503 ft.

UINTA—California Co.'s U. P. 1, 7-17-119w, dr 3034 ft. H. Allen Rispin's LeRoy 1, 5-16-117w, prep to resume.

WESTON—Continental Oil Co., 1, 11-45-64, will deepen from 1000 ft. California-Wyo. Drilling Synd., 15-44n-64w, ready to resume at 4300 ft.

MONTANA

BROADWATER—Swoboda et al, 1, 36-7n-2e, dr 450 ft.

BLAINE—Ohio Oil Co.'s Winngert 1, 3-34n-32em, dr 3260 ft.

CARBON—Ohio Oil Co.'s Northern Pacific 2, 11-7s-21e, rig up.

CASCADE—U. S. Pet. Co.'s Miller 1, 8-21-4e, resuming, td 946 ft. Lone Star's McLean 1, 13-21n-3e, dr 788 ft. Rothrock & Reynolds' McIver 1, se 12-20n-2e, dr 200 ft. Eden Oil Co., sw 27-18-4e, dr 820 ft.

CHOTEAU—Geraldine O. & G. Co., ne 1-21-11e, dr 1735 ft. Williston-Shelby O. & G. Co., 1, 12-28-11e, sd 2765 ft.

CUSTER—Montana Belle Oil Co.'s Loesch 1, 28-8n-45e, wait cas 2546 ft.

GALLATIN—California Co.'s Ringling 1, 35-5n-7e, run cas, td 974 ft.

JUDITH BASIN—Gem Oil Co., 15-16-10e, rig up.

LIBERTY—Sunburst O. & R. Co.'s Bear's Den 1, nw 17-36-6e, carry 12½-in, dr 1355 ft. Square Deal Pet. Co.'s Johnson 1, se 1-32-7e, co 3205 ft. Mid-Rocky Dev. Co.'s Federal

"Where doubt exists as to the commercial possibilities of a sand, drill stem tests can usually be made at a nominal expense, and where proper precautions are taken, there is little danger of blowouts."

Extract from paper read before the S. W. Division of the National Gas Department of the American Gas Association, Shreveport, Louisiana, January 14-15, 1929, and appearing in the OIL WEEKLY of January 18, 1929.

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These TONGS
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Manufacturers of
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Lands 1, 7-33-7e, sd 1500 ft. Western Natl. Gas Co., Morrison 1, 5-37-4e, dr 500 ft. Cypress Oil Co.'s State 1, 36-28-6e, dr 1970 ft.

PONDERA—Trapp Synd's Hover 1, 35-28-3w, stand 2220 ft. Miller Bros.' Bruins 1, nw 17-28-1w, rig up.

STILLWATER — J. S. Stewart, 5-2n-22e, show considerable gas at 2300 ft.

SWEETGRASS — Shoshone Consolidated 1, 23-2n-15e, td 4040 ft.

TETON—Texas Pacific, 12-22-1w, dr 1050 ft.

TOOLE—Sunburst O. & R. Co.'s Sunburst 1, nw 10-34-3e, rig up. Monalta Oil Co., Ltd.'s Buckley 1, se 1-37-4w, dr 100 ft.

TEXAS GULF COAST

Completions

FORT BEND COUNTY—		
South Texas Exploration Co.'s Hartfield 1	*	6889
GALVESTON COUNTY—		
Long et al's Bishop & Irvin 1	*	4322
HARRIS COUNTY—		
Torsen et al's Stewart 1	*	691
Hunt et al's Lobit 1	*	2145

AUSTIN COUNTY—Raccoon Bend: Humble O. & R. Co. and Valley Oil Corp.'s Snell 1, lcn; Washington B-1, dr 130 ft shale; E. B. Wilson 4, dr 1090 ft shale and lime; Mueller 1, sd after testing 550 lbs gas pressure and spraying some oil; R. Dietrich 2, laying down dr pipe, td 3317 ft; Hardy 3, wt on cement to set 3216 ft; Hardy 4, lcn; Buchanan 1, dr 3008 ft sand; Washington A-2, dr 2286 ft shale and lime; A. Grawunder D-1, dr 2920 ft; Ollie Wilson 2, dr 905 ft shale and lime; Urban 2, standing 3227 ft; Urban 3 setting screen 3360 ft; R. Thompson 3, wt on cement to set 3021 ft; Sarah Helmuth 1, ru; Sanders 2, fsh tools 2969 ft; Kalieszewski B-1, dr 90 ft sandy shale. F. & M. Drilling Co.'s Mewis 1, w of Raccoon Bend, no report.

BRAZORIA COUNTY—Empire's Brock 1, Stratton Ridge, ru. Humphreys Corp.'s Bryan 1, Bryan Heights, fsh 3233 ft.

CALHOUN CONUTY — Baker & Thompson's Thomas 1, 10 mi w Pt. Lavaca, sd 2730 ft.

CHAMBERS COUNTY — Barbers Hill: Mills Bennett Prod. Co.'s Smith 2, dr 5065 ft rock; E. W. Barber 1, dr 4250 ft sand and shale. Humphreys Corp.'s Kirby B-6, sdtr 4485 ft; Kirby A-7, dr 2300 ft rock; Tarbutton 1, dr 2754 ft rock. Sun's Chambers Co. Agri. Ass'n 1, dr 5340 ft shale. Gulf's Fisher Fee 1, oil odor in sandy lime 5210 ft. Cedar Bayou Oil Co.'s Fitzgerald 1, no report. Carpenter & Eunice's Feldman 1, dr 4300 ft shale. Tolbert et al's Ilfrey 1, dr 4340 ft shale and lime.

COLORADO COUNTY—The Texas Co.'s Kinkler 1, Cat Springs, dr 1163 ft, lime and shale. Shell's Neuendorff 1, 1 mi se Bernado, no report. Humble's Binkley 1, Altair, dr 2115 ft water sand. Merrett et al's Zverck 1, 2 mi e Ellinger, sd 320 ft.

FAYETTE COUNTY—Moore et al's Kerr 1, Muldoon, sd 2078 ft. National Oil Co.'s Melcher 1, Plum, 3035 ft shale.

FORT BEND COUNTY—Sun Oil Co.'s E. C. Farmer 6, dr 287 ft sand; H. R. Farmer 4, Boling, dk. The Texas Co.'s Pleasants 1, Boling, dr 3766 ft rock. Gulf's Trone 11, Long Point, dr 1140 ft lime. Sugarland: Humble's Brazos Farm 5, making up 3-inch dr pipe 3438 ft; Brazos Farm 6, dr 1068 ft shale and boulders; Hamner Fee 1, lcn; Hamner Fee 2, lcn; Hamner Fee 3, lcn; Deatherage 1, ru; Sugarland Industries 7, dr 2214 ft shale and lime; C. C. Nelson 2, wt on cement to set 3487 ft; Camp 3, dr 3238 ft shale and lime; Camp 4, lcn. South Texas Exp. Co.'s Hartfield 1, Needville, abn 6889 ft.

GALVESTON COUNTY—Long et al's Irvin & Bishop 1, 2 mi s Dickinson, abn 4322 ft.

GOLIAD COUNTY—Booth & McCarson's Murry 1, Goliad townsite, sd 1460 ft. Gulf Coastal Oil Co.'s Nona Mills 1, 5 mi e Saratoga, dr 1565 ft shale. West Prod. Co.'s Baker 1, 5 mi e Saratoga, coring sand 4320 ft.

HARRIS COUNTY—Torsen et al's Stewart 1, 4 mi sw Genoa, abn 691 ft. Hunt et al's Lobit 1, 4 mi n Goose Creek, abn 2145 ft. Humble's Simms-Smith 75, Goose Creek, cement setting 4271 ft; Warren 5, Hockley, dr 3836 ft hard sand; Williams 1, Humble, dr 3370 ft gbo; Irvin 1, Mykawa, dr 1215 ft gbo. Paxton et al's Brubacker 1, 1 mi ne Clodine, sd 1125 ft gbo. Paxton & Pundt's Brown 1, dr 936 ft gbo. South Texas Pet. Co.'s Myers 3, Humble, dr 3020 ft gbo. Little York Oil Co.'s Davis 1, Little York, dr 3100 ft shale. The Texas Co.'s House 22, Humble, flowed 600 bbls 26 grav. 5057 ft; Stevenson 39, Humble, dr 5111 ft shale.

JACKSON COUNTY — The Texas Co.'s Moore 1, Edna, dr 3644 ft shale and lime. Wright Bros.' Drushell 8, Edna, dk; Classen 2, Edna, sd 3945 ft.

JEFFERSON COUNTY — Deep Test Oil Corp.'s McFaddin 1, 6000 ft e Spindle Top, sd 3500 ft. J. W. Farhar et al's Rohwedder 1, 5 mi ne Beaumont, sd 2965 ft. The Texas Co.'s Pipkin 1, Big Hill, dr 5900 ft, hard shale. Gulf's Thomas 11, Fannett, dr 4425 ft; Bordages A-7, Fannett, dr 4850 ft; Bordages A-6, r 5290 ft. Yount-Lee Oil Co.'s Nona Mills 1, 5 mi s Beaumont, dr 5800 ft shale and lime. Shell's Heisig 1, 2 mi n Hampshire, dr 880 ft gbo.

LIBERTY COUNTY — The Texas Co.'s David 2, Davis Hill, dr 4041 ft sandstone; Pickett 3, n end S. Liberty, dr 4733 ft shale; Green 5, n end S. Liberty, dr 3147 ft lime and shale. Humble's Sterling 4, Moss Bluff, dr 3116 ft hard sand. Union Explo. Co.'s Esperson 2, 2 mi s Sheeks, set 4½-inch casing over oil sand, td 5562 ft. Republic Prod. Co.'s Mysilvec 1, 2 mi s Hardin, dr 950 ft gbo.

MATAGORDA COUNTY—Crossland et al's Hawkins 1, Shepherd's Mott, dr 4640 ft sand, rock. Rycade-Humble's Kuntze A-6, Markham, dr plugs 3745 ft. Dr. P. S. Griffith's Baer 1, 1½ mi n Gulf Hill, dr 2171 ft gbo. West Prod. Co.'s Meeyrs 1, Markham, dr 3520 ft gbo.

ORANGE COUNTY—The Texas Co.'s Kuhn 1, 4 mi e Spindle Top, dr 2865 ft sand, shale and lime.

REFUGIO COUNTY — Houston Gulf Gas Co.'s Fannie Heard 7, Refugio, flowed 100,000,000 ft gas 3679 ft; Lambert 8, dr 3381 ft lime; Holmes Heard 4, dr cement plug 482 ft; Rose Lambert 2, dr in sand 3646 ft; O'Brien 4, dr 3648 ft hard rock; Rooke 2, set surface cas 150 ft; Rogers 3, dr deeper at 3675 ft; Skelly 7, dr 3356 ft hard sand. Saxet Oil Co.'s Clint Heard 6, Refugio, no report. Oigufer Oil Co.'s Shelly-Ryals 1, flowed 600 lbs. pressure through ¼-inch choke 3660 ft.

WALLER COUNTY—Dixie O. & G. Co.'s Brazos River State 1, San Felipe, sd 500 ft. The Texas Co.'s Young 1, 3 mi e Raccoon Bend, dr 2338 ft sandy shale.

WASHINGTON COUNTY — Sun Oil Co.'s Schlottman 1, Clay Creek dr 2285 ft gbo; Mrs. J. Grote 2, resumed dr at 2578 ft; G. F. Grote 4, dk; G. F. Grote 7, dk; Schrimer 2, no report. Davis et al's Seward 1, ½ mi n Independence, sd 2300 ft. Thomas et al's Giddings 1, 4 mi e Brenham, sd 500 ft. W. D. Anderson's Rubenstein 1, 4 mi se Gay Hill, sd 340 ft. Brains et al's L. S. Smith, 4½ mi ne Bay Hill, lcn.

WHARTON COUNTY — Hearte Oil Co.'s Brown 1, 3 mi s El Campo, sd 2243 ft.

WEST TEXAS

Completions

BREWSTER COUNTY—			
Forrest Oil Co., Skinner 1	*		1540
CONCHO COUNTY—			
J. L. Duffey et al, Lovelace-Lockhart 1	*		1824
JONES COUNTY—			
Roeser-Pendleton et al, Castle 1	*		3000
RUNNELS COUNTY—			
Union Oil Co., Allen 1	*		3850
WARD COUNTY—			
Gulf Prod. Co., G. W. O'Brien 4		2400	2631
WINKLER COUNTY—			
Shell Pet. Corp. & Llano Oil Co., Scarborough 5	*		3565

ANDREWS COUNTY—Deep Rock Oil Co.'s Hostetter 1, elev 3224 ft, top salt 1890 ft, top lime 4100 ft, dr lime 4400 ft. Mid-Continent Pet. Corp.'s Fisher 1, elev 3192 ft, ur 1120 ft.

BORDEN COUNTY—Gibson-Johnson et al's Higginbotham 1, elev 2432 ft, top salt 1135 ft, dr 1900 ft. Greene O&R Co.'s Slaughter 1, elev 2521 ft, top salt 1222 ft, dr 2450 ft. C. E. Hyde et al's Beal 1, elev 2361 ft, top salt 1105 ft, top lime 2665 ft, dr 2910 ft. W. A. Moncrief et al's Munger 1, lcn. Teas & Wheeler's Long 1, lcn.

BREWSTER COUNTY—Ed W. Bateman & Co.'s Neville 1, elev 3950 ft, dr up bailer, td

1955 ft. Brewster Oil Co.'s Fee 1, crooked hole, td 1505 ft. E. L. Chapman et al's Skinner 1, lcn. Johnson & Bert Weekly's Jackson-Harmon 1, elev 3972 ft, dr 1010 ft.

COKE COUNTY—W. C. Oates & J. S. Dennis' Mims 1, sd 1655 ft; Mims 2, spudded and sd. Mid-Kansas O&G Co.'s Lackey 1, elev 2102 ft, swabbed 75 bbls oil 40 deg. gravity pay 3750-56 ft, sd set cas. Ray McCamey et al's McCutchen 1, dr 450 ft.

CONCHO COUNTY—J. L. Duffey et al's Gilliam 1, spudded and sd. Jones & Liner's Jones 1, fsh 1100 ft.

CRANE COUNTY—Gulf Prod. Co.'s Waddell 7, dr 200 ft.

CROCKETT COUNTY—W. A. Moncrief & W. W. Donnelly's J. S. Todd 1, (Sec. 35) elev 2530 ft, top lime 1275 ft, passed up show oil 1365-69 ft, set cas 1381 ft; R. Massie 1, (Sec. 47), dr hfw 535 ft. W. W. Donnelly-J. D. Young et al's Shannon 1, (Sec. 42) elev 2661 ft, sd 780 ft. Eppenauer Drlg. Co. & West Texas Pet. Corp.'s Noelke 1, dr 570 ft. Lewis & Daniels' Pecos River Bed 1, elev 1967 ft, sr 665 ft. J. D. Wheeler et al's State Fee 1, elev 2326 ft, top salt 492 ft, sd 1485 ft.

CULBERSON COUNTY — Deep Rock Oil Co. & Grisham-Hunter Corp.'s Kloh 1, fsh 1440 ft.

JEFF DAVIS COUNTY—Sam F. Means et al's J. Z. Means 1, sd 4005 ft.

FISHER COUNTY—Bickerstaff et al's McWhirter 1, elev 1932 ft, sd 2000 ft. Cranfill-Reynolds & Sun Oil Co.'s B. F. Willingham 2, elev 1808 ft, top lime 3071 ft, ur 3318 ft. Culberson Bros. & Mesa Oil Co.'s Griffin 1, elev 1842 ft, ur cas 2390 ft. J. B. Dunigan et al's Henry 1, elev 1913 ft, ur 2925 ft. Gilman-McMurray & French's Cleveland 1, elev 1973 ft, ur cas 2870 ft. Mid-Kansas O&G Co.'s Maggenheimer 1, lcn. Roeser-Pendleton & Amerada's Haught 1, elev 1792 ft, fsh 1965 ft. The Texas Co. & Phillips Pet. Co.'s Hall 1, elev 2102 ft, dr 2270 ft. White Eagle O&R Co.'s Hughes 1, dr 1855 ft.

GAINES COUNTY — Pure Oil Co.'s Williamson 1, elev 3197 ft, top salt 2333 ft, fsh 4124 ft.

GARZA COUNTY—Emerald Oil Co.'s D. Boren 1, elev 2210 ft, co after shot, td 2610 ft; J. S. Reed 1, rig.

GLASSCOCK COUNTY — Daniels-Kyle et al's Meek 1, elev 2792 ft, sd 405 ft. Meriwether Oil Co.'s McDowell 2, elev 2517 ft, top salt 970 ft, top lime 2445 ft, dr 3435 ft. Penn Oil Co. & Empire's Hughes 1, elev 2733 ft, top lime 2265 or 2335 ft, dr 3310 ft. World Oil Co.'s McDowell 1-C, elev 2530 ft, sd lime 2150 ft.

TOM GREEN COUNTY—Williams et al's Wilkey 1, sd hfw 750 ft.

HOWARD COUNTY—Furhman Pet. Corp.'s Reed 1, lcn. Gibson-Johnson et al's Reed 1, dr 840 ft. Harrison et al's Dodge 1, run rods & tubing after shot, td 3257 ft.

HUDSPETH COUNTY — The California Co.'s University 1, elev 5833 ft, crooked hole, td 976 ft. Western States Oil Co.'s Gardner-Mosely 1, elev 5086 ft, sd 3155 ft; Moore 1, elev 5150 ft, sd 2760 ft.

IRION COUNTY — Furhman Pet. Corp.'s Sugg 1, Lse. 2, top salt 920 ft, dr 1640 ft. Irion County Drlg. Co.'s Tankersley 1, machine. Kimbrough et al's Nutt 1, elev 2299 ft, sd 1420 ft. Kimbrough & Flinchbaugh's Tankersley 1, elev 2241 ft, dr 1040 ft. Kingwood Oil Co.'s Sugg 1, elev 2334 ft, dr black lime 6110 ft. Signal Oil Co.'s Sugg 2, elev 2498 ft, top salt 760 ft, top lime 1470 ft, dr 2855 ft.

JONES COUNTY — J. E. Brewer et al's Goodman School Lot 1, lcn. Geo. Callahan & Worth Oil Co.'s Britton 1, dr 750 ft. W. G. Clark et al's Dickenson 1, rig; Miller 1, lcn. Condor Pet. Co.'s McDonald 1, dr 1705 ft. Culberson Bros. et al's Anderson 1, lcn. Grisham-Hunter Corp.'s Hester 1, elev 1855 ft, dr 2350 ft. P. K. French et al's Leeson 1, sd 215 ft. Sam Knepley et al's Horn 1, dr 260 ft. McGinley-Sigler Co.'s Maryin 1, dr 1830 ft; Whittemore 1, sd 1700 ft. Sedgwick O&G Co.'s Routh 1, elev 1730 ft, top lime 2700 ft, ur 3070 ft. E. M. Treat O&G Co.'s Hodges 1, dr 425 ft. White Eagle O&R Co.'s Teague 1, lcn.

LOVING COUNTY—Hazell 1, elev 2705 ft, rig; Hazell 2, dk; Johnson 1, rig; Hubbard Heirs 1, elev 2706 ft, top salt 700 ft, set 6-inch cas 3985 ft; Hubbard 2, elev 2692 ft, top salt 718 ft, dr 2300 ft; Wheat 1-H, elev 2713 ft, top salt 720 ft, dr 2370 ft.

LYNN COUNTY—Hart Oil Corp. & Mc-

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Save Trouble and Expense With "V" Pilot Packing

ON derrick engines and slush pumps—in fact, wherever rod packing is used in oil production work—oil field men have proved to their own satisfaction that "V" Pilot Packing lasts longer, saves trouble and reduces expense.

On oil field pumping engines, for example, "V" Pilot Packing has proved unusually efficient in preventing oil leakage from crankcase to compression chamber.

On polish rod stuffing boxes, where rubber rings were formerly used and changed every three to four days, "V" Pilot has served from one and one-half to two months and longer!

Even if the service you are now getting from packing is considered satisfactory, it will pay you to investigate "V" Pilot Packing and the possibilities it offers for minimizing trouble and saving expense. A trial of "V" Pilot can readily be arranged through the distributor near you, or if you prefer, direct through us. Write today.

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"V" PILOT PACKING

Camey's Edwards 1, elev 3128 ft, sd for rotary, td 915 ft. H. F. Miler et al's May 1, spudded and sd.

MENARD COUNTY—J. B. Holstein et al's Davis 1, lcn. Duffey & Carl Cromwell's R. S. Winslow 1, materials.

MIDLAND COUNTY — Phillips Pet. Co.'s Stokes 1, dr 915 ft.

MITCHELL COUNTY — H. H. Adams et al's Ellwood 1-A, co 596 ft; Ellwood 1-B, lcn. California Co.'s Clark 2, dr 1250 ft. Clopton & Hammon's McKenzie 1, lcn. Jack Ellis & Atlantic Prod. Co.'s Ellwood 1, testing 1½ million ft gas 633-47 ft. Republic Prod. Co.'s Ellwood 1, lcn. Simms Oil Co.'s Ellwood 1, elev 2237 ft, top lime 1215 ft, dr 2750 ft; Ellwood 1-A, ur 700 ft. Teas & Wheeler's Radford 1, elev 2223 ft, top salt 667 ft, top lime 1365 ft, sd 3865 ft. Westyde Inv. Co.'s Ellwood 1, lcn.

NOLAN COUNTY — L. K. Bradstreet & Co.'s Kuteman 1, rig. Phillips Pet. Co.'s Plunkett 1, rig.

PECOS COUNTY—Atlantic Oil Prod. Co.'s J. C. Trees 1, rig. M. H. Black et al's Pecos 1, dr 1035 ft. Buell-Hagan et al's University 1-B, machine. A. R. Bell et al's Gray 1, dr 775 ft. Karl L. Crowley et al's R. G. Heiner 1, elev 2548 ft, lowering cas 864 ft. Carl Cromwell & Kimberlin's T. S. Johnson 1, lcn. Doran & McGee's Pecos 1, dr 715 ft. Cowboy Evans et al's Pecos 1, lcn. Spot Geyer et al's B. F. Smith 1, top salt 745 ft, top lime 1365 ft, dr hfw 1405 ft. J. W. Grant et al's Turney 1, elev 2592 ft, top lime 1015 ft, sd 4590 ft. Imperial O&G Co.'s Pecos 1, lcn. Sam Kitts et al's Sherbino 1, rig. Mauch & Krogen's Holmes 1, elev 2325 ft, top salt 535 ft, dr 1410 ft. R. E. Moore et al's Arnold 1, machine. W. A. Moncrief et al's Tippett-Unit Plan 1, machine. J. D. O'Mara et al's Byrne 1-A, spudded and sd. O. J. Peren et al's H. J. Eaton 1, elev 2497 ft, top salt 1090 ft, co est. 18 mil ft gas 1490-1502 ft, with spray water. Phillips Pet. Co.'s Courtney 1, crooked hole 550 ft. Schumaker et al's Williams 1, elev 2388 ft, sd 700 ft. Shell Pet. Corp. & Kirby Pet. Co.'s University 1, elev 2628 ft, sd installing heavy drlg eqpt., td 4404 ft. Talbot et al's D. K. Unsicker 1, lcn. Tidal Oil Co.'s University 1, elev 2552 ft, top lime 1035 and 3315 ft, fsh 4312 ft; University 1-B, lcn; White-Baker 1, elev 2810 ft. Trees Oil Co. & Empire Gas & Fuel Co.'s J. C. Trees 1, elev 2461 ft, ur cas 1490 ft. Bert Weekly et al's Byrne 1, sd 320 ft.

PRESIDIO COUNTY—Brite Prod. Co.'s L. C. Brite 3, dr 245 ft. C. E. Miller-Delmar & Phillips Pet. Co.'s Tootle 1, set 6-inch cas 2470 ft.

REAGAN COUNTY—Kemrow & Co.'s Sawyer 1, lcn. Skelly Oil Co. & Utah Southern's University 4, dr 410 ft. Oberholtzer et al's Talley 1, elev 2592 ft, top salt 1005 ft, top lime 2735 ft, dr 2900 ft. Big Lake Oil Co.'s University 1-C, elev 2731 ft, top salt 1100 ft, crooked hole 2385 ft; University 2-C, elev 2703 ft, top salt 1071 ft, dr 1710 ft; University 131, dr 4715 ft.

REEVES COUNTY—Penn Oil Co.-Amerada et al's E. G. Bowles 1, elev 2783 ft, top salt 1725 to 4425 ft, dr 5210 ft. Southern Crude Oil Pur. Co. & Dixie Oil Co.'s Kloh 1, dr 1160 ft. D. R. Thompson et al's Eddins 1, elev 2719 ft, top salt 1622 ft, top lime 3216 ft and brown lime 3500 ft, sd 5658 ft. Lee O. White et al's Kloh 1-A, elev 3244 ft, dr 265 ft.

RUNNELS COUNTY — Herbert Oil Co.'s Currie 1, ur 410 ft. Independent O&G Co.'s Rollwitz 1, dr 1580 ft. Marland Prod. Co.'s Herring 1, elev 1821 ft, dr 2820 ft. Ira Nourse and E. Tilton's Cramer 1, elev 1775 ft, good show oil 3515-3600 ft, dr 3630 ft. Vacuum Oil Co.'s McMillan 4, dk. Reese & Cates' Clayton 1, co 1185 ft.

SCHLEICHER COUNTY — Ft. McKavitt Oil Co.'s Tisdale 1, elev 2155 ft, dr 2245 ft. Interstate Explo. Co.'s Whitten 1, sd 3540 ft. Underwood Oil Co.'s Tisdale 1, dk.

SCURRY COUNTY—R. B. Pender et al's Davis 1, elev 2208 ft, top salt 445 ft, sd 2600 ft.

STERLING COUNTY — Foster-Gracey Oil Co.'s Foster 1, elev 2260 ft, dr 2205 ft. Miller Bros. et al's Foster 1, elev 2662 ft, top salt 1140 ft, top lime 2094 ft, sd 2782 ft. Wilson et al's Ellwood 1, spudded and sd.

SUTTON COUNTY — Phillips Pet. Co.'s Holman 1, elev 2247 ft, top lime 2315 ft, sd in black lime 6400 ft. L. G. Priest et al's Allison 1, sd 1710 ft. Southern Crude & Dixie Oil Co.'s Allison 1, dr 4440 ft.

TAYLOR COUNTY—J. B. Jameson et al's Webb 1, dr 2165 ft. Mid-Continent Pet. Corp.'s Taylor 1, elev 1933 ft, pb from 3007 to 2500 ft for shot. C. M. Root Drlg. Co.'s Martin 1, set cas 700 ft. Thomson et al's Hamner 1, water trouble 2480 ft.

TERRELL COUNTY—Milham Corp.'s Bassett 1, elev 2270 ft, dr sandy-lime 4765 ft.

UPTON COUNTY—Sun Oil Co.'s Long 1, top salt 580 ft, dr 1340 ft.

VAL VERDE COUNTY—Dyer Bros. et al's Wilson 1, elev 2115 ft, fsh 2715 ft. Producers Oil Co. et al's Everett 1, sd 2290 ft. Val Vert Oil Corp.'s Bassett 1-A, elev 2069 ft, sd 3760 ft.

WARD COUNTY — Barstow O&G Co.'s Monroe-Gillespie 1, spudded and sd. Gulf Prod. Co.'s G. W. O'Brien 5, dk; Hutchings Assn. 2, lcn. J-H-L Oil Co.'s Hayzlett 2, elev 2505 ft, top salt 745 ft, dr 1510 ft. K. Kimberlin et al's Thompson 1, lcn. J. F. Shipley et al's Monroe 1, lcn. Tex-Oil Prod. Co.'s Redman 1, sd 960 ft.

WINKLER COUNTY—M. J. Bashara et al's Fee 1, elev 2883 ft, top lime 2310 ft, dr 2420 ft. Liner Drlg Co. et al's Campbell 1, spudded and sd. Prairie O&G Co.'s Scarborough 1, elev 2914 ft, co and est. 200 bbls daily 2930-3053 ft. Texas-Canadian Oil Co. & Superior's Kloh 1, elev 3243 ft, top salt 1490 ft, sd 2775 ft. Tidal Oil Co.'s Scorborough 1, lcn.

YOAKUM COUNTY—Bert Weekly et al's Knight 1, elev 3692 ft, ur 10-inch cas 1035 ft.

SOUTHWEST TEXAS

BASTROP COUNTY — Gypsy Prod. Co.'s Lottman 1, e Bastrop, sd 2150 ft. Livingston et al's McCall 1, 1 mi s Bastrop, dr 2105 ft shale. Owens et al's Boodman 1, 1½ mi Cedar Creek, dr 1500 ft lime.

CALDWELL COUNTY — Anderson et al's Horner 1, 1 mi s Lockhart, sd 1400 ft. Alexander-Smith's Cardwell 1 4 mi n Lockhart, dr 1715 ft Edwards lime; Carter 1, 2 mi se Lytton Springs, lcn. Allen & Dixon's Callihan 1, so of Lockhart, sd 2010 ft.

GONZALES COUNTY—Greene et al's Dix 1, sw part of Co., sd 665 ft. Linderman Bros.' Frampton 1, 1 mi n Waelder, sd 606 ft. Benedum Trees Oil Co.'s Lamkin 1, 1 mi n Ottine, dr 3900 ft Taylor marl. Flynn et al's Wilhouser 1, 12 mi s Gonzales, sd 5212 ft. Empire G. & F. Co.'s Norwood 2, Otine area, dr 3513 ft. Indiana Pet. Corp.'s Karnstadt 1, Ottine, sd 4344 ft. Joe Bruner's Miller 1, 1 mi n Waelder, dr 2150 shale. Crown Pet. Co.'s Hattenbach 1, dr 906 ft shale.

GUADALUPE COUNTY — Christie et al's Thomas 1, 12 mi ne Seguin, sd 1227 ft. Sights et al's Woehler 1, 4 mi e Seguin, cored Edwards lime 2405 ft. Miller Bros.' Springs 1, 5 mi s Seguin, dr 2435 ft Edwards lime. Mid-Kansas' Lohman 1, 8 mi s Staples, coring 1395 ft. Magnolia's Whiley 1, 6 mi e Kingsbury, dr 3110 ft lime.

JIM HOGG COUNTY — The Texas Co.'s Vela 2, dr 1600 ft lime and shale.

MAVERICK COUNTY—Rycade Oil Corp.'s Chittim 4, 20 mi e Eagle Pass, set 16-inch cas 740 ft; Chittim 3, 20 mi e Eagle Pass, dr 3505 ft; Sullivan 4, 20 mi e Eagle Pass, dr 500 ft.

STARR COUNTY — The Texas Co.'s Virginia Guerra 1, dr 270 ft sandy shale.

WEBB COUNTY—The Texas Co.'s Weeks-Wilder 2, dr 2151 ft sand.

Fort Worth, Texas. — The Hartwell Supply Company was recently incorporated with a capital stock of $20,000 by L. A. Eberhart, H. J. Morlang and Edgar T. Walters to dispose of a large volume of oil well and pipe line supplies, machinery and drilling tools that were purchased from a former active oil company in the Texas Panhandle and West Texas districts. Eberhart is vice-president in charge, and general offices of the company are located in the Capps Building, Fort Worth, while stores are maintained at Borger and McCamey, Texas.

Hercules Motors Corporation, Canton, Ohio, recently completed an enlargement program at its plant and facilitated a monthly output of more than 2500 engines. New equipment added includes units for running engines before placing them on the market. This testing equipment, consisting of Sprague Electric Dynanometers, has been more than doubled under the expansion program.

PERMITS

(Continued from page 88)

JEFFERSON COUNTY—O. V. Beck, Seay 2, se sw sw se, 34-6s-5w.

KAY COUNTY—Harris & Haun, Brown 1, owdd, sw, 9-27-1w.

LINCOLN COUNTY—Magnolia, Mitchell 1, ne, 33-14-6e.

MUSKOGEE COUNTY — W. C. Cushing, Myers 1, owdd, se sw sw, 22-15-17e, H. E. Williams, Monday 1a, cnl se ne, 17-15-17e. R. & R. Drlg. Co., R. Brown 1a, se, 18-13-16e. Robinson Bros. Drlg. Co., Lewis 2, sw nw ne, 6-13-16e.

OKLAHOMA COUNTY—Shell, Petty 2, sw ne, 30-11-2w.

OSAGE COUNTY — Wrightsman Pet. Co., No. 1, nw ne nw nw, 20-26-9e. C. B. Peters, No. 2, nw ne se, 18-24-8e. Marland & Gypsy, No. 1, se ne, 21-24-7e; L. G. Stanley et al, No. 2, nw ne se se, 14-21-8e. Mid Co. No. 1, nw se, 34-20-10e.

PAWNEE COUNTY—Roy Sears, Wiggs 3, sw ne nw, 35-20-9e. McMann O. & G. Co. et al, Johnson 1, cwl se se, 27-20-9e.

PAYNE COUNTY—Home Gas Co., Grass 1, nw se, 13-18-5e.

POTTAWATOMIE COUNTY—Gypsy, Rosemand 4, nw ne, 26-7-4e. Phillips, Lydick 1, owdd, se ne, 24-7-4e. Gypsy, LeClair 2, owdd, ne sw se, 23-7-4e; Gypsy, Leclair 1, nw sw se, 23-7-4e, owdd. Continental, Light 1, ne se se, 18-7-4e.

SEMINOLE COUNTY—Carter, Davis 1, ne se sw, 7-6-8e. Empire & Marland, Anderson 3, nw se sw, 13-9-5e. J. S. Cosden, Anderson 3, se nw sw, 13-9-5e. Gypsy, Payne 1, nw ne se, 18-9-6e. Magnolia, Anderson 2, se sw ne, 18-9-6e. Magnolia, Anderson 1, sw se ne, 18-9-6e. Carter, Sanford 1, nw se, 16-9-6e. Magnolia, Sarkeys 1, sw ne nw, 8-9-6e. McCplloch Oil Co., Goody 1, owdd, se sw se, 18-9-7e. Blackwell O&G Co. & Fisher Oil Co., Jonah 1, sw ne, 15-9-7e. Magnolia, Fee 3, se nw ne, 11-8-5e. Magnolia, Reed 1, ne sw, 4-87e. Magnolia, Wood 1, se, 28-7-6e. Signal Oil Co., Bond 1, sw ne, 13-6-7e. I. T. I. O., Porter 1, ne, 24-6-7e.

STEPHENS COUNTY—Shell, Cook "N" 4, nw ne sw, 30-1n-8w, owdd. Magnolia, Green 9, sw nw, 13-1s-4w. Clark & Cowden, Davidson 4, nw sw, 13-1s-4w. Magnolia, Kagay 23, ne nw ne sw, 34-1s-8w. Magnolia, Kagay 22, ne sw, 34-1s-8w. Ven-Mex-Mid-Co., Gilworth 3, ne se nw, 2-2s-8w. Pace et al, Donham 2, sw se ne, 11-2s-8w. Pace et al, Bristowe 2, sw nw, 18-2s-7w.

ARKANSAS

OUACHITA COUNTY—Cumberland Pet. Co. Burton et al (drill) 1, 300 ft s 300 ft e sw cor ne¼ se¼, 24-15-18. McDonald Bros., Inc., Wilson (drill) 2-B, 450 ft n 310 ft w se cor sw¼ nw¼, 25-15-18. Wesson & Bonner, G. C. Boothe (drill) 1, 300 ft n 300 ft w se cor ne¼ se¼, 12-15-19.

UNION COUNTY—Arkansas Drilling Co., McDonald (aban) 1, 330 ft e 330 ft s nw cor sw¼ nw¼, 11-17-18.

ASHLEY COUNTY—The Texas Co., Keiffer (abn) 1, 660 ft s 660 ft e nw cor of Sec, 11-18-4.

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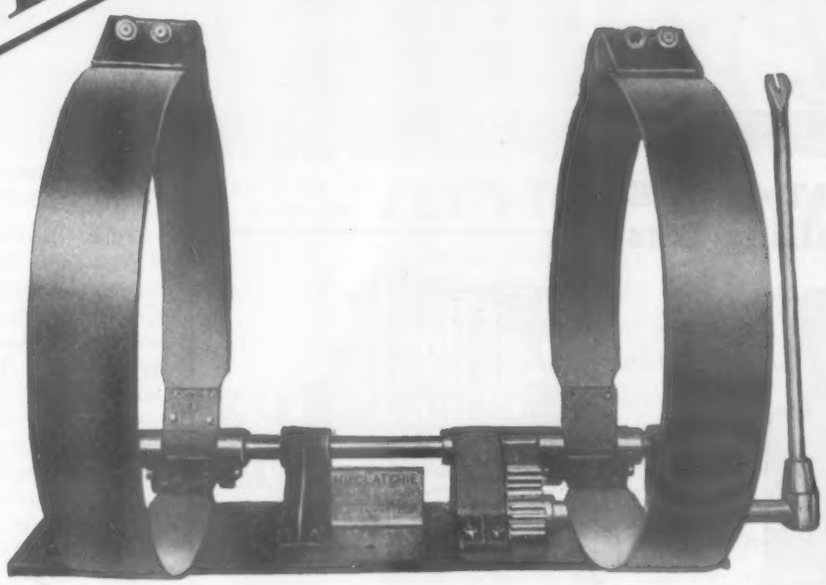

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Am trying your "K-P" Bit and like it fine. The "K-P" makes plenty of hole where the fishtail won't go. I made 72 feet in 6 hours in lime shell and I don't believe there is another bit that will make it.
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*Driller for Coyle-Concord Oil Co., Big Spring, Texas.

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A. I. M. E. Plans for 1929

New York.—Plans for the Petroleum Division of the American Institute of Mining and Metallurgical Engineers include three principal meetings during 1929. The first will be held early in October in Los Angeles, the second, just prior to or following the International Petroleum Exposition in Tulsa, probably late in October, and the third will be the usual meeting in New York City in February.

In the preparation of programs for these meetings the committee has particularly in mind, first, subjects of live interest to the industry, and second, subjects not already being handled by other organizations. Among such subjects that group which has to do with handling unit operations seems to be of greatest importance, as the petroleum engineer is not qualified at present to outline a fixed program for the development of a unit pool. At the Tulsa meeting, therefore, attention will be concentrated on well spacing, the time element in a development program and methods of production control to the end that the greatest amount of oil may be recovered from the sand at lowest cost.

The California meeting will comprise a two-day session, one day given over to technical discussions, probably of proration and over-production from an engineer's standpoint, this being the chief topic of interest in California. Field trips will be organized for the second day so that visiting engineers may study the more important methods and types of installation used in California practice.

In addition to the more or less technical studies outlined above, one session at the Tulsa meeting will be given over to hydraulics of flowing wells and another to new developments in miscellaneous phases of the engineers' work.

The February meeting will be organized on a three-day instead of a two-day basis, in order to avoid duplication of sessions. Two sessions will be given over to the usual production summary, one to economics, one to production engineering, one to the research round table, and one to engineering education. In addition, an evening session which will include production engineering, production, economics and refinery summaries.

It is expected that the research committee will be particularly active during this year and will work in close co-operation with a similar committee in the American Petroleum Institute and with representatives of the Bureau of Mines.

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NEW ORLEANS
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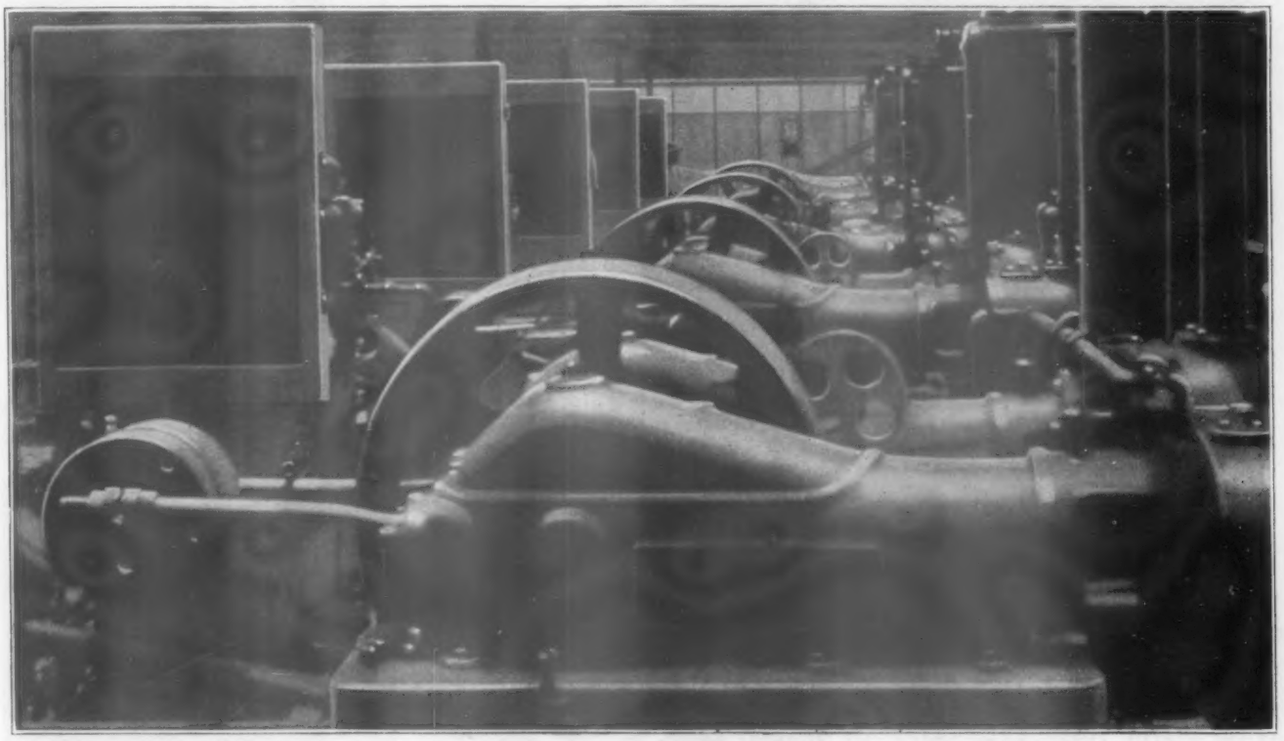
Tulsa.—J. Edward Jones of New York City, head of the J. Edward Jones organization and president of Midland Royalty Corporation, is in Tulsa in connection with the purchase of oil producing royalty interests. The organization, represented by Mr. Jones, has in addition to its field facilities in Oklahoma and Kansas, retail representation in New York City, Pittsburgh, Toronto, Los Angeles, London and Dresden. The growth of this organization is demonstrative of the development of the royalty industry.

Jones' new company, Midland Royalty Corporation, was formed primarily to take over his personal royalty holdings and to provide a medium for acquisition of oil producing royalty holdings. The company is underwritten by Webb, Lyon & Company, an investment banking house of New York City. Its policy will be to acquire royalty interests in the proven fields of Oklahoma and Kansas.

Mr. Jones is probably the largest individual purchaser of oil producing royalty in the Mid-Continent. He is represented in Tulsa by Carl R. Blackman. Blackman is steadily expanding field facilities of the organization in the Mid-Continent.

Watkins, Colo.—Nettie M. Slatt et al will drill a test on Watkins anticline, northeast of Denver, in what is known as Denver Basin. The well will be drilled to 5000 feet, it is intended.

LOWERING COMPRESSOR



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Climax 6-cylinder Easy-Flow Engines are showing unusually low power costs on all around compressor service. You can set them up easily and quickly — permanent foundations are not required. You can set them up close to the lines, eliminating long air lines and headers. They operate on natural gas as well as on gasoline. These 6-cylinder models have the extra needed power. They have large cooling systems, exceptionally reliable oiling systems, and they come equipped with clutch, electric generator, battery, etc., even a complete kit of tools. Reports from the field show that Climax Easy-Flow Engines are doing the work of machines costing much more and that the installations were made in one-tenth the time.

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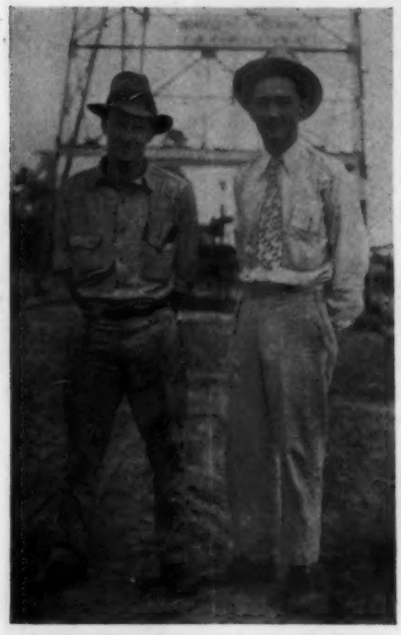

C. D. ALWORTH AND
FRED HODGDEN

C. D. Alworth, is petroleum engineer for Humble Oil & Refining Company in Boggy Creek field, East Texas, having been transferred there following a short hitch with that company at Ranger. He is a graduate engineer at Oklahoma University at Norman, and is engaged in compiling some valuable records on gas-oil ratio, controlling well pressure, preventing water encroachment, and the like.

Fred Hodgden, with Humble's production department at Boggy Creek, has been in the field with this company for five and one-half years, and formerly was located at Powell field. Prior to joining the Humble he served Carter Oil Company in the crude storage department, being stationed at Yale and Burbank, Oklahoma.

W. T. Radford, field superintendent for Rio Bravo Oil Company at Spindle Top during the deep sand development, is now living in Jacksonville, Texas, where he represents Rio Bravo in its connection with Humble Oil & Refining Company leases at Boggy Creek field. Radford has served Rio Bravo in nearly every property the company operates.

Charlie Daniels, old-time wildcatter in North Louisiana for many years, is back in that territory following a period of three years spent in West Texas. Daniels was drilling 15 years ago around Shreveport, and is personally acquainted with every township in North Louisiana where oil or gas development has been done.

Charles H. McDonald has made a name for himself as a successful wildcatter, especially since his discovery early this year of the Mount Holly, Arkansas, field six miles west of Smackover's northwestern tip, the Louann light crude area. He drilled Brown No. 1 wildcat, discovery well of Richland, Texas, field along the Balcones Fault in 1923. The "nigger luck" dubbing that comes to many pool openers doesn't belong to Charlie McDonald. He's been in the business of roughnecking, pipeline building, tool dressing and drilling nearly all his life, and served, before going into the business for himself, The Texas Company for many years. He has developed considerable knowledge of geology through years of drilling, and goes in mainly for fault line development. McDonald was born in Hope, Arkansas, and spent much of his early life in Tyler, Texas.

W. C. THOMAS

Bill Thomas has had a clean oil field career every since his job was cleaning ditches for gathering lines at Spindle Top in 1901, when his initiation into the industry was had with the Burt Syndicate of Beaumont. His recent appointment as assistant manager of the Southwest Division for Vacuum Oil Company just registers another score in his 28 years' service in the field.

CHARLES H. McDONALD

As general manager of production and drilling for Vacuum Oil Company for more than three years he has been one of the leaders in the Gulf Coast territory in solving field problems. He has been an important figure in developing the deep production of his company at Lockport, Louisiana, where some of the hardest field problems in drilling and producing oil are encountered. Outside of service in the Texas and Louisiana Coastal country he had two years of service in California, 1911 and 1912, with the Kern Trading and Oil Company. His field experience in drilling, superintendent of field jobs, working on production problems and district superintendent has been obtained through connections in the past with Guffey Company, forerunner of the Gulf Oil Corporation, Producers Oil Company, a forerunner of The Texas Company, the E. F. Simms Interests, forerunner of the Simms Oil Company, and Humble Oil & Refining Company.

If anyone doubts that this picture was taken in the farm boss' yard at Hull field, Texas, write in for the negative.

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Fits any make working barrel — oversize Steelex Ball and Seat—an extension lower valve of unexcelled qualities.

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Users boost the performance and long life of this unit—it produces less cut oil and B. S.—slower stroke and power savings are desirable features. Ask any user or consult your supply store.

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Then an Oakite material was applied and allowed to soak on the concrete for a few minutes. Oil and grease spots were scrubbed and the whole surface rinsed with a hose. A better job was obtained.

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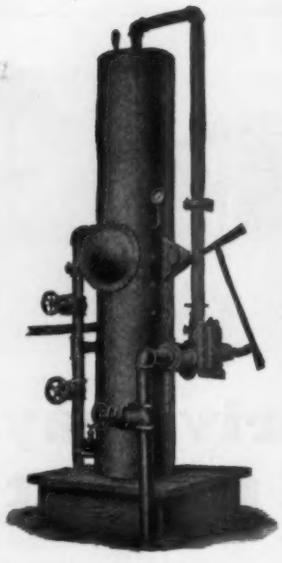

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Mining of Oil Sands

The recovery of the approximately 80 per cent. of the oil left in the ground in petroleum production operations constitutes one of the greatest challenges of mining engineering, says George S. Rice, chief mining engineer, United States Bureau of Mines. Suggestions as to possible application in the United States oil industry of the methods employed in the actual mining of oil sands at Pechelbronn in Alsace, France, and Wietze, near Hanover, Germany, were advanced by Mr. Rice in the presentation of a paper on oil-sand mining at a recent meeting of the Engineers' Society of Western Pennsylvania. Mr. Rice has observed at first hand the methods employed in mining oil sands in the districts named. He proposes important modifications of the methods to lessen the cost of producing the oil, although he pointed out that the invested capital must be large to effect economies and to provide safety, since dangerous gases must be encountered.

A Gas Preheater of Simple Design

(Continued from page 30)

A high-pressure steam inlet, two inches in diameter, was provided by welding to the shell, near the one end, half of a two-inch standard pipe coupling; directly beneath, provision was similarly mare for a two-inch drain; and near the opposite lower end, similarly was provided a two-inch steam outlet which then leads to a trap.

Both gas inlet and outlet lines are six inches in diameter. All valves and fittings on the gas line are extra heavy C. I., flanged. Section A-A in Figure 1 shows how the gas, within the heater, is directed through the lengths of one-inch pipe. A one-quarter-inch baffle plate welded to a one-half-inch tube sheet (in which 52 holes were drilled and the ends of the pipe then spread and welded fast) separates the incoming from the outgoing gas.

Figure 2 represents an elevation of this same gas preheater and shows the piping arrangement. After leaving the preheater, the 250-pound pressure gas goes to a pressure regulator and reducer and is then ready for use in the refinery. The temperature of the gas leaving the preheater is controlled by th superheat of the steam going to the heater. The whole preheater is insulated.

Imperial Royalties Company

Established April, 1920

Will pay the usual monthly dividend of 1½% on its $1.00 par Preferred shares on April 30th. This is Dividend No. 103 and makes a total of 175% paid to Preferred shareholders. Also, the usual monthly dividend of 18 cents a share will be paid on its Class A Preferred Shares on April 30th.

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J. E. HORN
Trustees
Hunt Bldg., Tulsa, Okla.

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Contracts taken for Seismograph Work

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WEST TEXAS

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Descriptions and prices on application

HEYDRICK MAPPING COMPANY
Wichita Falls, Texas

Coastal Oil Finding Company

Contracts taken for Torsion Balance Work

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Phone Fairfax 4383

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619 Petroleum Bldg., Houston, Texas.

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Tulsa Branch Factory,
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For closer relations with the Oil Industry...

Biturine Pipe Coatings
L & S Portland Cement Paint
Bitulumin
Color Paints
Varnishes
Enamels

More than four years ago the same farsighted policy which was responsible for the rapid growth and expansion of Hill, Hubbell & Company's business on the Pacific Coast in its service to widely varied industries, for all paint requirements, led to the establishment of a branch factory at Tulsa, specializing in oil industry paints and pipe line coatings. During the short period which has followed, the Tulsa branch factory of Hill, Hubbell & Company has manufactured and shipped hundreds of carloads of protective coatings.

The paint products which have been manufactured in Tulsa and marketed under the Lighthouse Brand, and the pipe coatings under the trade name "Biturine", have made this symbol of high grade, uniform quality famous throughout the Mid-Continent and Southwestern oil fields.

HILL, HUBBELL & COMPANY

Division
General Paint Corporation

Manufacturers of Highest Grade Oil Industry Paints and Pipe Line Coatings

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Mid-Continent Factory: TULSA
Offices:
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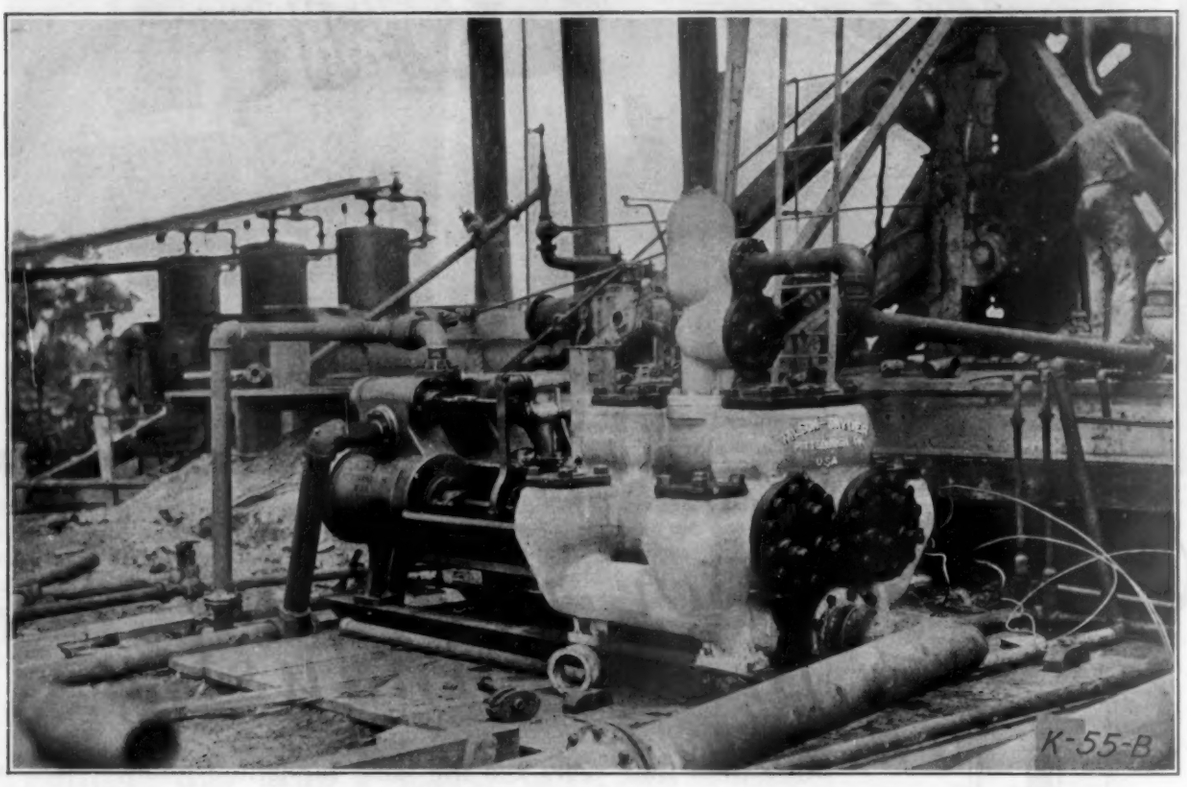
Wilson-Snyder Slush Pump Distributors



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Mid-Continent

Wilson Supply Company
Texas

Buck & Stoddard
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WILSON-SNYDER
BUILDERS OF HEAVY DUTY PUMPS FOR OVER FIFTY YEARS
PITTSBURGH, PA U.S.A.

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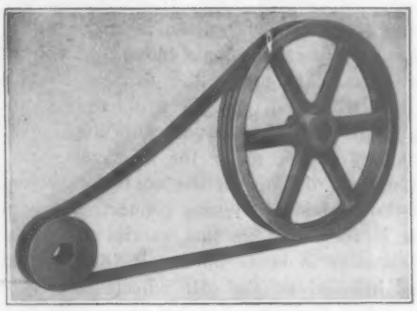
NEW EQUIPMENT, CATALOGS, BULLETINS, BOOKS

V-Belt Drive

FAIRBANKS, MORSE & COMPANY



A set of sheaves and belts for a typical V-belt drive

The new V-Belt drive developed by Fairbanks, Morse & Company has made possible the use of short centers with higher speed motors, requires no lubrication and operates without vibration.

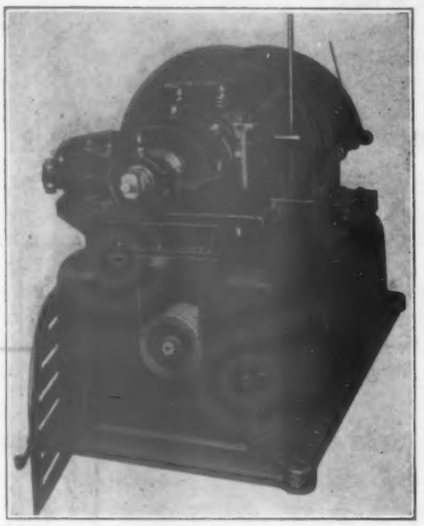
Among the outstanding advantages of this drive system is that of reducing floor space required for a drive. Speed increase is practical even where some type of idler pulley device is used. Little tension is had on the return side of the belt, due to the wedging action of the belts in grooves. Thus, bearing pressures can be reduced.

The V-belts are available for transmitting power from a

Drive belts are built up of duck, shown at A and B. Special compounded rubber (C and E) and layers of cords, shown at D

fraction of a horse-power up to more than 200, and may be used in either reducing or increasing speeds. Fairbanks, Morse & Company's Flex-Mor drive V-belt has been made following dynamometer tests to determine the factors of belt angles, slippage, life of belts of various constructions, character of the various materials entering into the drive and power capacity. The belts are built up of an outer belt jacket of duck, treated with rubber to improve its wearing qualities. This jacket consists of two layers of duck enclosing a core made up of a layer of rubber, several layers of rubber-embedded cords, and another layer of rubber above the cords. The layer of rubber below the cords is compounded to withstand compression, while the layer of rubber above the cords is compounded to withstand tension. The rubber-embedded cords are laid at the neutral axis of the belt where there is the least tension or compression. These cords are made of long staple cotton. The construction is quite similar to that used in cord tires. The various elements of the belt are assembled in the mold and vulcanized together into a unified structure.

The sheaves are made of semi-steel, designed with particular reference to the angle and depth of the grooves so that belt slippage is at minimum. The relation between the angles of the belt sides and the grooves is such that the belt makes a gradual contact with the grooves as it bends around the sheaves. Due to the wedging action of the belts in the grooves and to their elastic qualities there is no sudden grabbing of the load and sudden shocks to the driving and driven machine are eliminated.



A short center vertical drive, one of the most difficult belt drive problems, is solved with multiple V-belts

Steel Engine Foundation

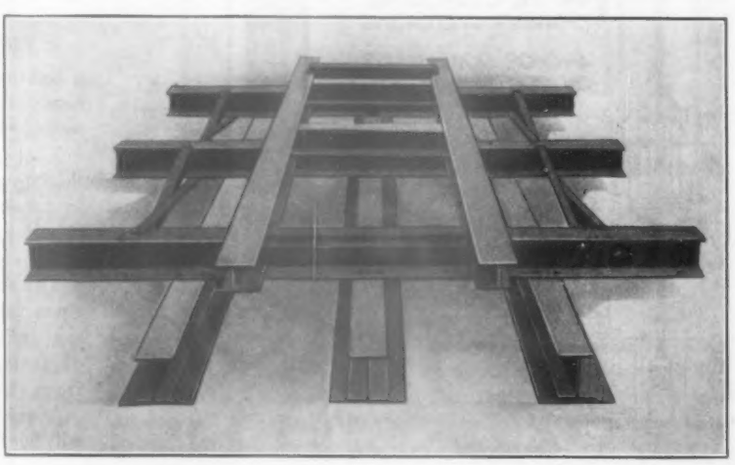
STEEL ENGINE FOUNDATION COMPANY

The Steel Engine Foundation Company, 2030 West 5th Street, Oklahoma City, has developed and is marketing steel engine foundations for single and twin engines. They weigh about one-half as much as wood foundations for the same purpose, are quickly assembled and easy to handle. All sills are interchangeable and no precautions are necessary in placing the sills before bolting on the engine.

Large 16-inch flanges are used on the bottom and the packing of dirt around them when the foundations are set in place gives greater rigidity and eliminates engine vibration on the rig.

All twin foundations put out by the company are punched for the Halliburton drilling control.

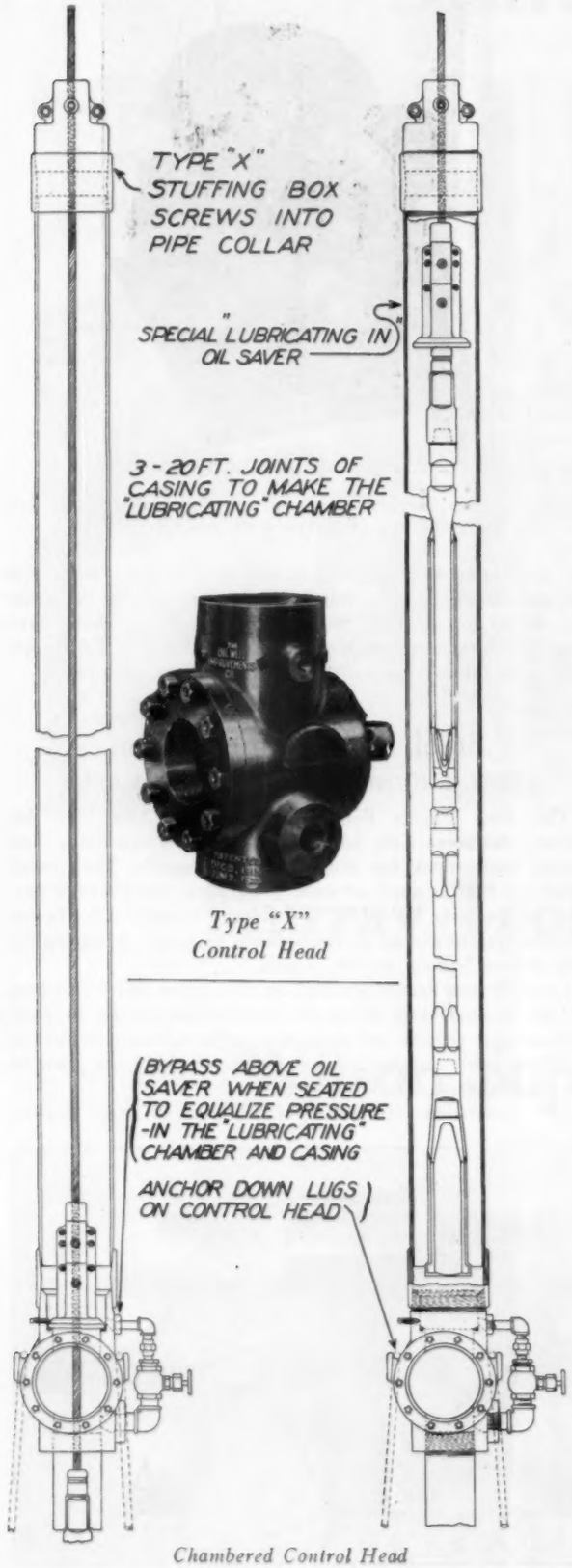
The foundations are made for all types of steam engines



including such makes as Ideal Ajax Roller Bearing, Ideal Ajax Plain Bearing, Oil Well, Acme and Lucey.

Single foundations weigh approximately 5000 pounds and the twin 7000. The twin with the control attachment weighs about 7800 pounds.

Many of the leading supply companies are stocking the foundations in their field stores.


TYPE "X" STUFFING BOX SCREWS INTO PIPE COLLAR
SPECIAL LUBRICATING IN OIL SAVER
3 - 20 FT. JOINTS OF CASING TO MAKE THE "LUBRICATING" CHAMBER
BYPASS ABOVE OIL SAVER WHEN SEATED TO EQUALIZE PRESSURE -IN THE "LUBRICATING" CHAMBER AND CASING
ANCHOR DOWN LUGS ON CONTROL HEAD

Type "X" Control Head

Chambered Control Head

Chambered Control Head

OIL WELL IMPROVEMENTS COMPANY

A tool especially designed for heavy-duty oil field work in lubricating cable tools in and out of the hole while drilling with a heavy oil flow or gas pressure has been perfected and now is being manufactured by the Oil Well Improvements Company of Tulsa. This product is known as the chambered control head with special design of oil saver and stuffing box.

The top of this control head, trade-named type "X," is threaded above the oil saver seat so as to receive a pressure chamber made up of casing long enough to accommodate a full string of tools. The top of the chamber is closed on the drilling line by the special type "X" stuffing box and the by-pass opening below the valve seat is connected by suitable fittings to a similar opening above the oil saver seat.

In rigging up and drilling in the control head is made up and clamped down and the by-pass connections are made and the flow line is connected up that carries the high pressure valve. The chamber is made up usually of three full joints of casing and handled on the calf wheels and the tools are run in the "rat hole," the rope socket unscrewed and lowered through the chamber and made up on the tools. The special type "X" Roller Oil Saver is put on the line above the tools and the type "X" stuffing box is bolted onto the line and made up on top of the chamber. Then the string of tools are pulled up into the chamber which is then made up on top of the control head and the by-pass is opened to equalize the pressure in the well and in the chamber.

After this the control head is opened and the tools lowered and as the oil saver comes to seat, the set screws that project below the pressure chamber are set up and they secure in place the oil saver. The by-pass is closed when the tools are on bottom and the pressure chamber is disconnected and raised high enough to permit the drilling clamp to be put on the line. Sufficient slack for drilling is run off the bull wheel and the pressure chamber is then hung back out of the way. After this drilling can proceed in the regular way.

When tools are to be removed the pressure chamber is swung over the control head and the slack on the bull wheel is taken up, drill clamps are removed and the pressure chamber is made up on the control head, the by-pass is opened and the oil saver set screws are loosened. The tools are then pulled into the lubricating chamber and the control head is closed and flow line opened. The pressure chamber may be disconnected to change bits or substitute other tools such as swab, sand pump, etc., when the control head is closed.

A particular feature of the pressure chamber in "lubricating" tools in and out of the hole is that the spraying of oil or salt water is prevented and thereby permits drilling operations to be free from damage to crops and danger to property or life.

Lighting Unit for Oil Fields

NOVO ENGINE COMPANY

Novo Engine Company, Lansing, Michigan, has brought out a lighting unit designed for oil field use. It is enclosed in a heavy steel house, which is weatherproof and which can be locked and placed anywhere convenient when not in use.

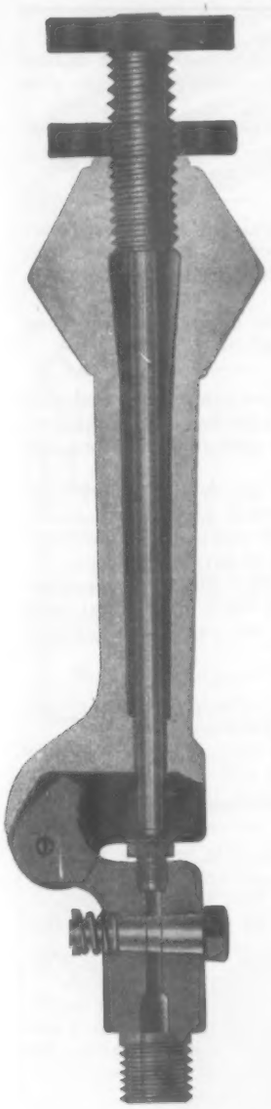
The engine and generator are connected by an insulated flexible coupling and mounted on an electric base, with welded-in tubular cross members. The outfits are provided with enclosed terminal boxes located inside the housing, with a quick break switch and fused terminals for the line wires.

The power units are all Novo Rollr engines operating at 1150 r.p.m. and are furnished with Timken main bearings. All units are designed with a surplus power ratio, permitting operation of forge blowers, grinders or small air compressors, belted from the auxiliary pulley.

A folder entitled "Light," describing the new lighting unit, will be furnished upon request to the home office.

Dean Safety Boiler Gauge Cock

SHAFFER SPECIALTY COMPANY



The Dean safety boiler gauge cock for oil field boilers incorporates a new safety feature, a shut-off valve that closes the hole in the boiler connection, preventing the escape of steam or water when replacing the valve seat. Thus the hazard of burning or scalding is combated through this piece of new equipment.

The gauge has but one wearing part, the valve seat plug, which is built especially for durability, but which can be replaced at a small cost.

The valve stem is made of non-corrosive steel and is adjustible for obtaining a complete shut off. The handle is weighted and balanced to provide a proper pressure on the valve seat. Lubrication is provided by a reservoir of hard oil in the tubular handle.

Further information on this new device may be obtained from the Shaffer Specialty Company, 113-115 South Denver Avenue, Tulsa.

A news story in THE OIL WEEKLY of April 12, describing Parkersburg Rig & Reel Company's air sign for co-operating with the federal government in furthering air navigation should have stated the letters in the sign were 12 instead of eight feet in height.

COPPER-STEEL PIPE BULLETIN

National Tube Company, Pittsburgh, has recently issued Bulletin No. 11, covering the subject of copper-steel pipe. Bulletin No. 11 devotes 10 pages to comparing the lasting qualities of metal which is copper bearing with that having no copper, and photographic repreductions made by the American Society for Testing Materials serve to present a graphic picture of both grades of material used in metal sheeting and pipe. A copy of this bulletin will be suplied to interested persons.

The Drane-Humphrey Company, Inc., Texas and New Mexico distributors for Butler Manufacturing Company of Kansas City, has recently purchased manufacturing and distributing rights of the Sawtelle Wire Line Lubricator. This product soon will be on the market through the Drane-Humphreys Company, Inc.

The Chaplin-Fulton Manufacturing Company, 28 Penn Avenue, Pittsburgh, recently issued its 1929 catalogue describing in detail the pressure regulators, governors, and other products manufactured by the company. Copies of the catalogue may be had on request.

NICKEL BULLETIN

The International Nickel Company, Inc., 67 Wall Street, New York City, is mailing out a folder listing available publications on nickel and its alloys. The purpose of this folder is to show all published information about nickel and its alloys, and interested persons are requested to check those books in which they are interested and return the folder to the company, so the checked publications may be mailed. A copy of the folder will be mailed upon request to the above address.

OPEN HOUSTON OFFICE

The Sexton Corporation of Texas has opened offices at 1808-10 Post-Dispatch Building, Houston, with D. F. Beaman as vice president and general manager and Thomas E. Booth as secretary and treasurer.

The Sexton Corporation is an organization of contracting engineers with many years experience in the construction of oil and gas pipe lines, gas compressor and distributing plants, harbor improvements and water and sewerage systems.

ELECTRIC CONTROLLER CATALOG

The Electric Controller and Manufacturing Company, Cleveland, has bound in catalog form its bulletins describing equipment of the company. The bulletins are published on heavy stock of glazed paper and presents an attractive make-up, fully illustrated with photographs, charts and drawings of the company's equipment.

A copy of this loose-leaf catalog will be furnished upon request to the company.

PUMPS AND PISTONS

D. & M. Machine Works, Lomita, California, has issued a 32-page booklet in three colors entitled "Non-Technical Chats on Pumps and Pistons." Taking up the workings of engines back to the Stone Age and describing them cleverly through drawings, editors of this booklet have turned out a very interesting piece of reading in which they present the story of their own equipment.

Copies may be obtained from the company headquarters or through Texas Rubber Specialty Company, 803 Franklin Avenue, Houston; Dick Probst, Taft, California; or the D. & M. Machine Works, Oklahoma City.

COMPRESSOR BULLETIN

Sullivan Machinery has recently issued Bulletin No. 83-L for March, devoted to illustrating and describing the Sullivan angle compound air compressors and will furnish interested persons with a copy upon request to its Chicago office, 122 South Michigan Avenue; New York office, 30 Church Street; or London Office, Salisbury House, E.C.-2.

The American Askania Corporation is the name of a new corporation formed under laws of Texas to sell in the United States the geophysical and other instruments and equipment manufactured by Askania Werke, A. G. of Bambergwerk, Berlin-Friedenau. G. Stubbe is general manager of the new corporation which has permanent offices in the Marine Bank Building, Houston, Texas.

Hill, Hubbell & Company, division of the General Paint Coring, 105 West Adams Street, Chicago. This office is made poration, has established an office at 1639-1641 Bankers Buildnecessary by the increasing scope of the company's mechanical coating and wrapping plants now installed at various tube mills in the pipe producing areas.

SPEED

in Drilling Makes Money

No Choking Up

Note that water courses lead direct to cutting edge. This design has accomplished a maximum cooling effect. The cuttings are rapidly broken up and washed away in solution thus obviating choking up.

Retains Cutting Edge

A principle in the design is that the blades are formed concavely favoring cutting edges for both bottom and side of hole. Attained by hard facing, permitting wear on back to retain cutting edge.

Write for illustrated folder.

B.K.APPLEMAN
BEAUMONT, TEXAS

Squeaks from the Bull Wheel

An old lady in church was seen to bow whenever the name of Satan was mentioned.

One day the minister met her, and asked her why she did so.

"Well," she replied, "politeness costs nothing, and—you never know!"

A teacher was telling her class little stories in natural history, and she asked if anyone could tell her what a ground hog was. Up went a little hand waving frantically.

"Well, Tommy, you may tell us what a ground hog is."

"Please, ma'am, it's a sausage."

"I can tell a lady by the way she dresses. Can't you?"

"I never watched a lady dress."

"Have you ever loved before?"

"No, John; I have often admired men for their strength, courage, good looks, or intelligence, but with you, it's all love, nothing else."

What a lovely fur coat you have on, my dear. Your husband must have changed his job.

I've changed husbands.

Ray—So you had to be operated on, eh?

Al—Yes, doc said he wanted to take out my appendix, but I think what he really wanted to get out of me was a new car.

"Henry, we must have baby's photograph taken before he gets any older."

"All right, I'll hunt up a moving picture man."

"Does your wife play bridge?"

"No. She's one of those experts at the game who make hard work of it."

An old lady was going down a coal mine for the first time in her life. As the cage descended she suddenly noticed how she and the rest of the party were dependent upon a single rope.

"Do you think it's quite safe?" she asked rather anxiously of a miner as she glanced at the rope.

"Safe as the bank, ma'am," returned the grimy miner cheerfully. "There's nothing to be afraid of. These ropes are guaranteed to last exactly 12 months, and this one ain't due to be renewed until tomorrer."

"What's the idea of rushing out of the house like there was a fire?" asked Bones, meeting Jones making a hasty exit.

"My modesty," grinned Jones.

"Huh?"

"There are six women and one little mouse in that room," he explained.

"Sam, this is a serious charge against you. Have you anything to say in your defense?"

"Yoh Hono, I not only denies the allegation, but I also declares the alligator is a liar."

"He was considered the most expert parachute jumper in the country," remarked one of the friends standing beside the open coffin.

"Yes," said the doctor, "he was good till the last drop."

A woman driver ran into an embankment and bent a fender. It worried her. She went to a garage and asked the mechanic:

"Can you fix this fender so my husband won't know it was bent?"

The mechanic looked at the bent fender and then at her, and said:

"No, lady, I can't. But I tell you what I can do. I can fix it up so that in a few days you can ask your husband how he bent it."

First Student—Could I borrow your tuxedo tonight, old man?

Second Student—Sure, if you'll return it to Joe Brown and tell him to be sure and give it back to Tom Jones.—Life.

"Do you think it's healthy to have those hogs in your house?"

"Wel-l-l, I've had hogs in this yere house for fo'ty-odd years, an' I ain't had one to die on me yet."

"Dear miss," wrote a particular mother to the teacher, "don't whip our Tommy. He isn't used to it. We never hit him at home except in self defense."

At a dinner party the guests were discussing whether women or men were the most trustworthy in business.

"No woman can keep a secret," said one man scornfully.

"I don't know so much about that," retorted the forbidding looking woman sitting opposite him. "I've kept my age a secret ever since I was twenty-four."

"Oh," he replied, "you'll let it out one day, though."

"I doubt it," she answered. "When a woman has kept a secret for twenty years, she can keep it forever."

"Do you know Lord Heathmoor? I've often shot at his country seat."

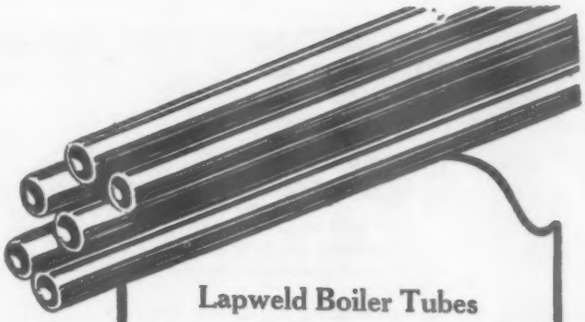
"And did you ever hit it?"

The battle was preceded by the following conversation:

Mike: "What were wheelbarrows invented for?"

Isaac: "To teach de Irish to valk on dey hind legs."

And not another word was said until the "cops" arrived.



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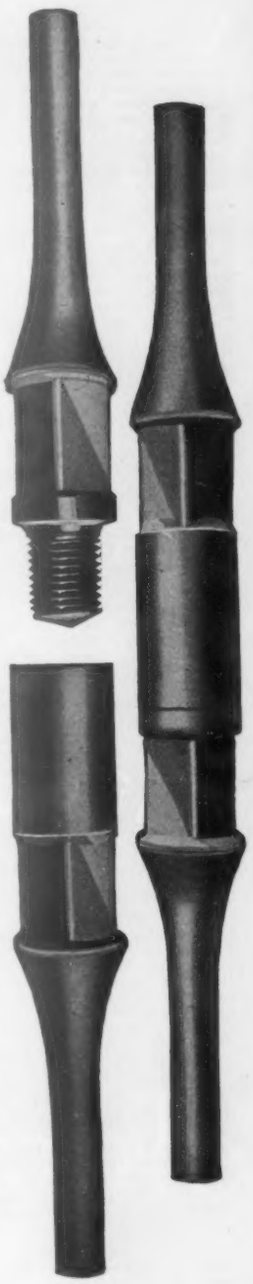

—And if you don't get service plus, you will not owe us a cent. We are willing to let Buffalo Rods sell themselves to you. A trial order will convince you of the superiority of this Sucker Rod. Send us your trial order today.

Buffalo Rods Are Economical

Because they last longer. They will give you more uninterrupted service, and soon pay for themselves in this extra and trouble-free service. Millions of feet of these rods are in service. They have been endorsed by operators everywhere. No obligation incurred by sending us inquiry.

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BUFFALO BOLT COMPANY
NORTH TONAWANDA, N. Y.

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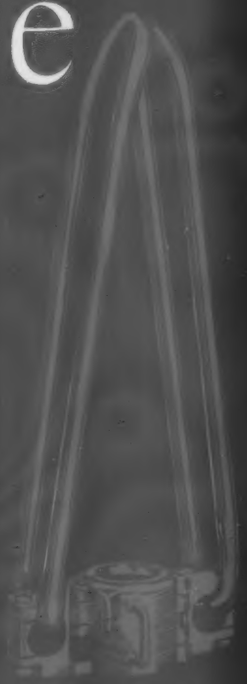

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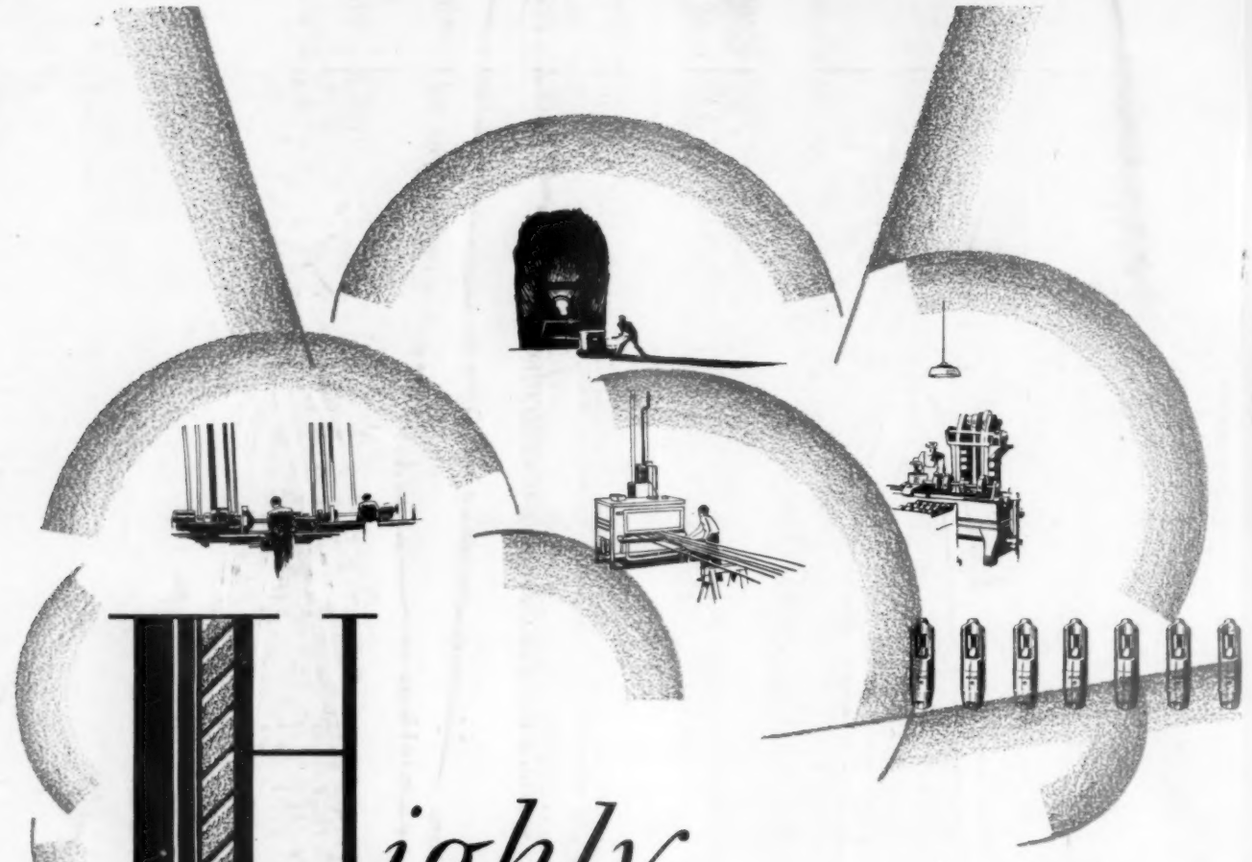

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